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PAPER TRADE JOURNAL

With Which Is Combined

Vol. C, No. 1 — PAPER — Thursday, January 3, 1935

Wisconsin Paper Mills Anticipate Good Year

George W. Mead, President of Consolidated Water Power & Paper Co., Expresses Optimism Over Future—Nekoosa-Edwards Paper Co., Plans Sales Expansion—President John E. Alexander Announces Establishment of Additional Branch Offices—Headquarters at Port Edwards Being Remodeled to Provide More Adequate Facilities

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 31, 1934—Sales expansion through the establishment of branch offices is part of the program adopted for 1935 by the Nekoosa-Edwards Paper Company, Port Edwards, Wis., according to John E. Alexander, president. He looks forward to the new year with optimism.

Cities already chosen for these branch offices are Cincinnati, Pittsburgh, Minneapolis and St. Paul. It is expected that other cities will be added. Through these additions to its sales contacts, the company expects to gain wider distribution, especially for the fine papers placed on the market since the company rebuilt one of its machines at the Nekoosa, Wis. mill for this purpose.

"With this wider distribution, and a continuation of the price stabilization program which became effective this year, we look forward to 1935 as a better year in every way," Mr. Alexander declared. He completed a ten-day trip recently to important jobbing centers around the country, and said, "All of the people I talked with were very optimistic and enthusiastic about business conditions for the next year. All of them reported business increases during the past year over the twelve-month period in 1933." He added that new lines will be added during the coming year, but did not indicate what they will be.

Viewing business of the year just closing, Mr. Alexander said, "We have enjoyed a more prosperous year than we did in 1933, and have operated on slightly higher levels than competitive mills in our field.

"Price stabilization, brought about through the curtailment of production and shipments, has been noticeable, especially in the kraft lines, during the year 1934. This is brought about through the allotment of production of the several mills comprising the association, and has been a decided benefit to everyone concerned. The result has been a better, sounder price structure for our products."

The company is remodeling the second floor of its offices at Port Edwards to provide more adequate facilities for the sales department.

Further business recovery during 1935 is confidently expected by George W. Mead, president of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. He summarized the situation and voiced his outlook in the following statement:

"With the superstitious faith of the prospector, we might take the divining rod and see which way it points. As we stand hopefully at the dawn of another new year we wish we could see ahead and plan accordingly. Expert economists are giving us some interesting prophecies, and if we are to believe them, we can continue in that spirit of optimism which has carried us through the past year.

"The year 1933 was the darkest of all. Business was rated at 76 per cent of the 1926 level, but this was volume only. Business was actually in chaos, with prices far below cost, and competition deadly.

"In 1934 we began to see some light ahead. We welcomed the N.R.A. with open arms. Codes of fair competition aided the stiffening of prices, and industry was urged by the government to increase wages in anticipation of better times.

"During the year 1934 our company received better prices for some grades of paper. Two wage increases were put into effect during the year, the basic rate being raised from 38 to 40 cents January 1, and then to 43 cents July 23.

"Financial prophets tell us that the first three months of 1935 will find business with an irregular upward trend. The middle of the year will be uncertain; however, the fall of the year will see a sharp upward movement. We are inclined to place confidence in this forecast, for it is in accordance with the business revivals of history.

"Paper mills throughout the country have shown a steady improvement during 1934. Employment conditions in our community are fairly good. Prospects for the future are better than they have been for several years.

"I firmly believe business recovery is definitely on the way, and I can say this with greater assurance than I could a year ago."

News of the Industry

Articles of organization of the Wisconsin River Paper and Pulp Company, Neenah, Wis., have been amended increasing the capital stock to $3,000,000, and the number of shares of stock to 30,000. The date of the annual

(Continued on page 20)

Paper Demand Fairly Persistent In Chicago

Noticeable Upturn Experienced In Many Grades of Paper, Including Kraft, Due to Merchants' Stocks—Fine Paper Market Displays Strength, With Bonds and Ledgers More Active—Newsprint Paper Division In Much Stronger Position

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 31, 1934—Although broken up by the various holidays and pre-holiday parties, the Chicago paper industry gave a very good account of itself during the past week. Those intending to wait until after inventory period before going into the market found their stocks so low as to permit no further delay. This caused a noticeable upturn in many lines, including krafts. Inquiries were generally more numerous and the local industry is responding to the obvious improvement in business in general which, though still depending upon several important factors, gives signs of a real revival.

All lines were expecting benefits from the exceptionally good holiday trade. Specialties were looking for replacement orders. Fine papers found holiday buyers depleting jobber stocks via the retail store method. Increased activity in all industry was being reflected in an upturn in bonds and ledgers and in papers used for advertising campaigns long delayed but now getting under way. Impressive increases in the advertising lineage of newspapers was also expected to join with the new price structure for a happier New Year for the newsprint industry. Ground woods expected to benefit from similar improvement.

The waste paper industry still finds itself confronted with some perplexing problems relative to minimum prices which are more or less nation-wide in application. Comparative dullness here was offset by the improvement in only a few lines.

Community Fund Drive Successful

Success has crowned the efforts of the hard-working representatives of the paper, book and school supplies division, designed to raise money for the Community Fund of Chicago, Inc. This is the annual drive to raise funds for worthy Chicago charities and is apart from all regular relief work. The division, headed by Henry Washburn, president of the Messinger Paper Company, raised $14,751 out of a designated $15,000 quota as of December 28. Thus the paper industry did more than 98 per cent of its assigned job with a few days yet to go.

Assisting Mr. Washburn in the fund raising activity were the following well-known representatives of the Chicago paper industry: George Bond, International Paper Company; E. D. Buchanan, Moser Paper Company; E. R. Carpenter and Ned C. Carpenter, Swigart Paper Company; K. E. Hellstrom, Messinger Paper Company; W. A. Johns, W. A. Johns Paper Company; W. J. Opfer, Midland Paper Company; J. W. Knox, Chicago Paper Company; C. B. Linstrom, Watervliet Paper Company; J. E. Loughran, Messinger Paper Company; E. P. Schmidt, Jr., Parker, Thomas & Tucker; H. G. Prosser, Bermingham & Prosser; F. A. Rolls, Allied Paper Mills; C. E. Runcie, Champion Coated Paper Company; J. E. Smith, Messinger Paper Company, and Stuart Stone, J. W. Butler Paper Company.

Bob Butterworth Retires

Bob Butterworth, head of the aggressive Chicago sales office of the Champion Coated Paper Company, located in the Conway Building, has, to use his own words, "decided to step out of the harness at the close of the present year." Mr. Butterworth, a factor in the paper business and particularly in the midwestern territory, for a total of 34 years, simply feels that he has spent enough time working and intends to take things more easy from now on. This does not mean that he will sever all connections with the industry, for as Alexander Thomson, president of Champion, says in a letter to the trade, "Bob will continue to use the Champion office in Chicago as his personal headquarters where his many friends may find him when they too have a little leisure—and occasionally he may put the harness back on for an hour or two when we need the benefit of his experience."

The friendly and dynamic gentleman who has held many offices in the Salesmen's Association and who has taken an active part in the full development of Champion business, was busy during the week accepting congratulations —but not goodbyes (he wouldn't permit that)—from the Chicago paper industry. One of his most valued possessions is the letter from Mr. Thomson, quoted in part above, and from which the following can be taken as an expression of the regard held for Mr. Butterworth's ability in this sector: "For a third of a century Bob has given us his best—and it has been a good best. With the passing years he has made for himself a place right in the center of the picture and the picture won't seem right without him, now that he has decided to retire."

Mr. Butterworth's successor in the Chicago office will be named prior to January 2.

Carl Trost with Lincoln Paper Co.

Carl H. Trost, for the past year doing a successful job of selling under Jim Coy, of the Flambeau Paper Company, has resigned from that position and accepted another as assistant general manager of the Lincoln Paper Company, 608 South Dearborn street, Chicago, dealers in fine papers. His leaving is a matter of regret to Mr. Coy and to the Flambeau organization, who found Mr. Trost unusually successful in purveying Flambaeu papers to the local trade. The new position with Lincoln offers Mr. Trost a fine opportunity to capitalize on nearly ten years of experience in a wide and varied field within the paper industry. He was with the Fraser Paper Company, of Chicago, for nearly four years; with the Hammermill Paper Company at Erie for four years and spent one year in Cleveland with the Petrequin Paper Company, paper jobbers. Just about a year ago the new assistant general manager of Lincoln joined the Flambeau Paper Company as an integral part of the Chicago territory selling force. Flambeau and his many acquaintances in the trade wish Mr. Trost a lot of success in his new job.

News of the Trade

The Swigart Paper Company this week mailed out a number of changes in the handy loose leaf price list, the changes reporting fully on rearrangement of listings, new and discontinued lines and price adjustments. Price changes were noted on sixteen carton lots of certain lines; on colored French writings; certain manila lines; Linweave Coldstream and other items. The loose leaf system permits almost instant modernization of the Swigart price list. The mailing also includes a reference sheet on all Strathmore Papers carried in stock by the Swigart Paper Company—bonds, books, cabinet stationery, covers, thin papers and writings.

Under the beaming direction of Ben Babbitt and R. C. Johnson, vice-president, the Midwest Division of the Salesmen's Association of the Paper Industry held its annual Christmas open house party on December 27, using a strategic point near the top of the Brevoort Hotel to carry on the festivities. A buffet luncheon inaugurated an afternoon which saw a total of 75 salesmen and guests in attendance at one time or another. At least a fourth of the total were paper jobbers and supply men in this territory who thoroughly enjoyed the party. While the enforced absence of Harold Knott and Jim Coy, both out of town on business, was regretted, the remaining headliners of the Sapeyes were on deck for the eats, the singing and the general good time.

Concurrent with the news that the Hanchett Paper Company, under the Santa Clausship of President D. F. Peck, held an office party on December 22, is that in reference to the appointment of J. D. H. Murphy to the position of sales manager of the Hanchett organization. Mr. Murphy was formerly head of the Commonwealth Paper Company, which merged with the Hanchett Paper Company last Spring.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 2, 1935—The Government Printing Office has received the following bids for 12,500 pounds of cream white laid cover paper: Whitaker Paper Company, 19 cents per pound; R. P. Andrews Paper Company, 13.09 cents; and Mathers-Lamm Paper Company, 13.09 cents.

Also the following bids were received for 38,800 pounds of buff index; Walker-Goulard-Plehn Company, Inc., at 11.866 cents per pound. The same bid was received also from the following firms: Perkins-Goodwin Company, Whiting Paper Company, J. W. Butler Paper Company, Reese & Reese, Inc., Aetna Paper Company, Barton, Duer & Koch Paper Company, and Mathers-Lamm Paper Company.

The Government Printing Office has announced the following paper awards:

The Walker-Goulard-Plehn Company will furnish 2,000 sheets of brown cloth lined paper, 24x36 at $143.78 per M sheets, bids for which were received on December 10.

Perkins-Goodwin Company will furnish 67,900 pounds (380,000 sheets) of 50 per cent rag, single ply, blue, buff and salmon, index at 11.866 cents per pound and Reese & Reese will furnish 5,000 pounds of oiled manila tympan paper in 48 inch rolls at 7.1 cents per pound. Bids for these items were received on December 5.

Reese & Reese will furnish 5,000 pounds (42,000 sheets) of 24x36, No. 1 flat kraft paper at 4.28 cents per pound. The R. P. Andrews Paper Company will furnish 5,000 pounds (22,000 sheets) of 22½x28½, 50 per cent rag single ply yellow index paper at 11.866 cents per pound. The Whitaker Paper Company will furnish 500 pounds of specially treated tympan paper in 48 inch rolls at 16.5 cents per pound. Bids for these items were received on November 28.

Crown Willamette Gets Refund

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 2, 1935—Wright Mathews, Acting Commissioner of Internal Revenue has announced a refund of $20,086.03 to the Crown Willamette Paper Company, San Francisco, Cal., for overassessments of income tax and interest for the year 1928 and of $17,741.09 for the period January 1 to April 30, 1929.

Waste Paper Price Stabilization Ends

WASHINGTON, D. C., December 26, 1934—The National Industrial Recovery Board today announced it had cancelled an order establishing minimum prices on waste paper sold by members of the waste paper trade to finished product manufacturers. The cancellation will become effective in ten days.

The Board found that, although wages in the trade were at a low level, the essential elements necessary for remedy by price control were not present. In order to effect price stabilization in an emergency there must be cohesion in the industry, and administrative facilities and organization capable of maintaining compliance, as well as recognized standards and a relative balance between supply and demand.

The original price order was put into effect following a period of destructive price cutting which affected wage levels and the condition of small firms. It was approved August 21, 1934, upon solicitation of the trade's code authority. On October 13, an extension was granted upon request of the code authority.

Before ordering cancellation an informal hearing had been held on December 13, and the Research and Planning Division had conducted an investigation. This disclosed that the order had caused serious dislocations in the industry by affecting some members adversely while materially benefiting others.

It was further disclosed that the order stimulated the collection of waste paper beyond the normal demands of consuming mills and resulted in overstocking. This came when the demand for paper was in its usual seasonal decline, leading to considerable financial distress and unemployment.

Evidence was also obtained showing that certain members of the industry had resorted to underselling which resulted in demoralizing competition.

It was revealed further the important factor in the trade played by the peddler, "junkie," old rags and bones man. "This man," a report of an investigator brought out, "is numbered by thousands; he is the typical primary collector of waste paper.

"His enterprise is predominantly a one man or family affair; he knows no code wages or hours; and he is not amenable to prosecution for code violation, as he possesses nothing and can lose nothing."

The National Code Authority at a meeting last week in Chicago had requested the maintenance of the order.

Finnish Trade Hearings Feb. 11

WASHINGTON, D. C., January 2, 1935—Secretary of State, Hull has announced trade agreement negotiations with Finland on which hearings will be held February 11.

Figures made public at the time of the announcement show that in 1929 the United States imported from Finland, 65,213,906 pounds of standard newsprint paper valued at $1,564,362 while in 1933 these imports increased to 113,154,513 pounds valued at $1,432,964.

The same figures show also that in 1929 the United States imported from Finland 1,911,013 pounds of "other printing paper," valued at $77,437 while in 1933 it was 1,125,007 pounds valued at $22,120. No wrapping paper was imported from Finland in 1929 but in 1933 the United States imported 2,948,644 pounds valued at $80,066.

Paper board, pulp board and cardboard imported into the United States from Finland in 1929, the figures show, was 11,486,961 pounds valued at $251,096 decreasing in 1933 to $5,845,863 pounds valued at $81,515. "Other paper and manufactures" imported from Finland in 1929 was valued at $76,254 compared with $41,894 in 1933.

Paper Demand Surprisingly Good In Boston

Some Fairly Large Orders for Various Grades of Fine Paper Placed During Past Week—Kraft Wrapping Paper Shares General Improvement—Box Board Market Continues Quiet—Orders for Paper Stock Received In Fair Volume—Prices on Lower Grades Easier

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 31, 1934—For the last week of the year the wholesale paper business in Boston was surprisingly good, although there were a few exceptions. The feeling among paper merchants, as a whole, is decidedly better than it was a year ago at this time. Dealers are not normally very busy at this period. Some fairly sizable orders for fine paper were placed. The same was true in wrapping paper. One dealer in kraft papers feels that business will be rather slow in January, but that prices will advance in March. Box board continued quiet, although there was some little buying for delivery after January 1.

In some quarters, too, orders for paper stock were received in fair volume, but, generally speaking, a dull market continued to prevail. Mills of two leading consumers were closed, temporarily. Paper stock dealers have received notices that the National Administration had cancelled the Emergency Order and fixed minimum sale prices on mixed papers and folded news, effective January 7. These prices were established about four and one-half months ago.

No. 1 mixed papers during the last week were regarded as worth .25, although the Code price was .32½. Corrugated boxes declined to .32½ flat from .32½ @ .40, in fact, a carload sold recently at .30. Some other changes took place in quotations of old papers. No. 1 hard white shavings declined to 2.00 @ 2.20, from 2.00 @ 2.25, No. 1 soft white shavings to 1.75 @ 1.90 from 1.75 @ 2.00, No. 2 mixed shavings to .75 @ .80 from .80 @ .85, and No. 1 books, heavy, to .50 @ .60 from .70 @ .80. White blank news, however, advanced to 1.20 @ 1.25 from 1.10 @ 1.15 and No. 1 kraft to .85 @ .95 from .85 @ .90. Under old domestic rags, more demand developed for No. 1 roofing stock, which advanced to .80 @ .85 from .75 @ .80. In foreign rags, there was likewise more interest, with the price advancing to 1.00 @ 1.10 from .85 @ .95. Prices of all grades of bagging and new domestic rags remained unchanged. The twine market was fairly good.

Bird & Son Pays Service Bonus

Bird & Son, Inc., East Walpole, have announced that earnings make possible a service bonus payment for the last six months' period on the same basis as paid in July. All members of the organization who on December 31, 1934, have been in continuous service of Bird & Son, Inc., for over five years, will receive 4 per cent of their normal six months' earnings. Those whose service has been over two years, but less than five years, will receive 2 per cent. This service bonus is based on normal six months' earnings, figured as 26 weeks (of 40 hours) at the present rate of each individual.

The company will also pay a special profit-sharing bonus regardless of length of service; every individual on the pay-roll December 1, 1934, will receive a special 5 per cent bonus. To those with one year or more of service, the bonus will be based on the normal yearly salary or wage rate. To those with less than one year of service, the bonus will be based on the normal earnings for the time employed.

News of the Trade

Carter, Rice & Co., Corp., is giving another bonus (the third issue to the entire staff of employees, consisting of five per cent of six months' compensation.

A Christmas party was given Monday at the office of the D. F. Munroe Company, with a tree as a feature. Every member of the staff received a gift. Floyd H. Blackman, secretary of the company, was master of ceremonies.

Chester Burnham, manager of the Boston office of the Kalamazoo Vegetable Parchment Company, and Robert E. McManus, a salesman of the Fort Hill Paper Company, leave tomorrow for the mill at Parchment, a suburb of Kalamazoo, Mich., to be there all the week.

An involuntary petition in bankruptcy has been filed against the Atlantic Paper Company, by Whitney Brothers, Inc., and others for $739.

Collins Appoints New Distributor

Announcement is made that A. M. Collins Manufacturing Company, of Philadelphia, has added Miller & Wright Paper Company, of New York City, to their list of distributors for the New York Metropolitan district.

Collins now has five distributors of book and cover papers and coated cardboards in this district, the old established connections being continued with Forest Paper Company, Lathrop Paper Company, J. E. Linde Paper Company and Schlosser Paper Corporation.

The A. M. Collins Manufacturing Company reports a steady upward climb in sales for the company's products beginning in July and running right through to the end of the year. Sales in this period have been materially larger than at any time since the beginning of the depression.

This improvement is expected to be accelerated by an extensive promotional campaign now being actively carried on in close cooperation with Collins distributors in all parts of the country.

The A. M. Collins Manufacturing Company is one of the old established converting concerns of the country, having been in business for over three-quarters of a century. Its lines are unique in many respects, many products being produced under patented processes.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 31, 1934—The Government Printing Office has received the following bids for 58,200 pounds of 50 per cent rag white index paper; all bids were identical at 11.0755 cents as follows: Whiting Paper Company, Old Dominion Paper Company, American Writing Paper Company, Perkins-Goodwin Company, R. P. Andrews Paper Company, Mathers- Lamm Paper Company, Aetna Paper Company, Barton, Duer & Koch Paper Company, and J. W. Butler Paper Company.

The Printing Office also received the following bids for 3,800 pounds of sulphite manila paper: R. P. Andrews Paper Company, at 6.25 cents per pound; and Mathers-Lamm Paper Company, 5.13 cents.

Philadelphia Paper Market Sentiment Cheerful

Paper Industry Suffered Less From Congenital Over-Production and Price Cutting During 1934 Than for Several Years Past—Little Difficulty Anticipated In Maintaining Prevailing Price Levels With Improvement Pending In All Sections

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 31, 1934—With the close of the year, business in the paper industry is sounding a very cheerful note. In previous years, the industry has suffered from what may be termed congenital overproduction, and its resultant evil—price-cutting. Conditions along this line are definitely better, and it is generally conceded that there will be little difficulty in maintaining present price levels with a general improvement pending in all lines. November showed marked improvement after making allowance for seasonal changes, and the total volume has been considerably greater than last year.

Association Activities

As reported in these columns two weeks ago, there have been revised filings on Rag Content Bonds and Ledgers with the Code Authority for the Philadelphia Trading Area. Bulletins Nos. 25 and 26 have been issued showing the changes which apply mostly to the larger quantity brackets. At a meeting of the Fine Paper Division, held on Friday, December 28, with Norbert A. Considine presiding, the attention of the trade was called by several members to the fact that there was a misunderstanding as to assortments to be permitted under these brackets filed.

It was pointed out that it was possible to interpret the filing in two different ways. To clarify the situation it was suggested that a new filing should be made which would definitely state the assortments that would be permitted in the different price brackets. This filing was made by the Paper House of Pennsylvania so as to remove the uncertainty. Under this new filing, assortments are permitted in full cartons on mill shipments, and on quantities out of stock from four cartons upwards in a minimum of one full package. The application of the quantity discounts on Coated Blanks was also discussed.

Central Statistical Bureau Proposed

A movement to have all of the houses in the Philadelphia Trading Area report their sales monthly to a central statistical bureau, which would publish the consolidated returns for the Philadelphia Area within a week after the close of each month, was thoroughly discussed. The hope was expressed that all the houses in the territory would cooperate in this undertaking. All those present were in hearty accord and voted unanimously to have the blanks issued and to inaugurate the program at once so that the plan could begin with a compilation of sales for the year 1934, beginning right after January 1. Mrs. Doris Lewis, corresponding secretary of the Paper Trade Association, was instructed to prepare the blanks and send them out to the membership.

Franklin Memorial Institute Meeting

Announcement was made of the suggestion to the Fine Paper Division by the authorities of the Franklin Memorial Institute, through Director Davis, that the Institute would be very glad to cooperate with the Paper Trade Association in arranging for an evening meeting in the near future to be held in the lecture room of the Franklin Institute.

James F. Megee, Jr., who has presented to the Institute a splendid collection of early watermarks of American hand made papers, has kindly consented to address all those in attendance at this meeting, on the history of early paper making in America.

Association Appoints Committee

The suggestion was received very favorably by the association, and a committee with Norbert A. Considine, president of the Paper House of Pennsylvania, chairman; William S. Wilcox, president of Wilcox-Walter-Furlong Paper Company and Reginald D. Perry, vice president of D. L. Ward Company, was appointed to make the necessary arrangements. It was suggested that all members of the trade, manufacturers as well as merchants, also the members of the printing fraternity be notified to attend this auspicious occasion which promises to develop material of great historical interest.

News of the Trade

Penn Paper and Stock Company, formerly at 217 Race street, has moved to its new location at 1025 North Front street.

T. H. B. Smythe, president of J. L. N. Smythe Company and of the Philadelphia Paper Trade Association, is confined to his home with an attack of grip.

Stebbins Engineers Return from India

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., December 31, 1934—F. T. Churchill and J. E. Cyener, construction engineers employed by the Stebbins Engineering and Manufacturing Company, have returned from an extended business trip to India, Arabia and Egypt. In discussing the trip Mr. Churchill said that considerable difficulty was experienced in installing modern machines in mills because of crude facilities. "Although we hear a lot about what England is doing in India their tools are still crude," he said, "while the natives are not trained for skilled work and move slowly. The mill in India we were working on will make paper from bamboo which is a little bit different from our raw material but the methods will be about the same."

H. Waterbury & Sons Increase Stock

[FROM OUR REGULAR CORRESPONDENT]

ORISKANY, N. Y., December, 31, 1934—A certificate announcing an increase in capital stock from $150,000 to $450,000 was filed this week with the Secretary of State by H. Waterbury & Sons Felt Company. The company has also increased the number of its shares from 1,500 to 4,500 with a par value of $100 each. The concern also filed notice that the duration of the corporation will be perpetual upon expiration of its present incorporation certificate.

Stanford Paper Co. New Brown Agent

The Stanford Paper Company of Washington, D. C., has been made an agent for Brown's Linen Ledger permanent record paper, a product of the L. L. Brown Paper Company, Adams, Mass. The Stanford Paper Company has been the Washington distributor of Greylock Linen Ledger, another L. L. Brown paper, for some years.

Obituary

John Gerrish Wood

[FROM OUR REGULAR CORRESPONDENT]

John Gerrish Wood, who had occupied prominent executive positions with the United States Cordage Company and the McCormick Company, died December 26, in his 76th year, at his residence, 84 Front street, Exeter, N. H., after an illness of several weeks.

Mr. Wood was born in Exeter, August 14, 1859, son of the late Alva Wood and Mary Franklin (Gerrish) Wood. He was graduated from Phillips Exeter Academy in 1877 and from Harvard in the class of 1881.

After spending a few years in Brooklyn, N. Y., in the employ of the United States Cordage Company as superintendent of its factories, he was called to Chicago in 1899 by the McCormick Company to initiate its plans for twine manufacture. He remained as superintendent of the McCormick Twine Mills and in 1906 was appointed first assistant to the manager of the manufacturing. In 1914 he became manager of the Western works and in 1922 was made manager of manufacturing. He was promoted to be assistant to the vice-president in charge of manufacturing in 1925.

After thirty years of service Mr. Wood retired in 1929, returning to Exeter, where he made his home with his sister, Miss Florence E. Wood.

He was a member of the Harvard Club of New Hampshire and the Harvard Club and the University Club of Chicago, the Art Institute and the Field Museum. He was also a member of the New Hampshire Historical Society, Society for the Preservation of New England Antiquities, and the Society of Colonial Wars.

Besides his sister, a niece, Mrs. Dora W. Wightman of Exeter, and a nephew, Paul A. Wood of Newtonville, Mass., are living.

Ellis R. Jones

KANSAS CITY, Mo., December 31, 1934—Ellis R. Jones, well-known paper merchant, who died recently at his home, 5800 State Line, of bronchial pneumonia, retired from his business five years ago and since that time had labored mightily on one of his hobbies, gardening.

Although owner of the Kansas City Paper House, Mr. Jones served as vice-president and secretary of the company. He was the founder of the San Antonio Paper Company and the Paper Supply Company of Houston, Tex. These two companies were later incorporated with the Carpenter Paper Company chain in which Mr. Jones was a stockholder.

Besides his wife and son, Mr. Jones leaves two sisters, Mrs. H. F. Gangwer, 3043 East Thirty-second street, and Mrs. John Weckman, 4917 Central street, and four grandchildren.

C. Harry Graves

SPRINGFIELD, Mass., December 31, 1934—C. Harry Graves, 45 years old, died in his home, 18 Pineywoods Avenue, this city recently after an illness of 24 hours. Mr. Graves was Springfield sales representative of the Judd Paper Company, of Holyoke, and was well known in this city, having been connected with the paper business since November 1, 1914. For the fourteen years previous he was identified with Meekins, Packard & Wheat.

Mr. Graves was born in Haydenville September 4, 1881, the son of Charles H. and Ellen O. Graves, and was educated in the Springfield schools. He was a member of the Advertising and Winthrop Clubs. He was married October 10, 1911, to C. Marion Judd, of Holyoke. He was a member of Faith Congregational Church.

Optimism at Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., December 31, 1934—Due to holidays and the annual inventory period, business in the paper trade here slumped considerably during the last week. The recession was expected, of course, and the trade believes it is but a prelude to the resumption of business after the first of the year on a larger scale. Jobbers and manufacturers in the trade are hesitant in making long term contracts, indicative of stronger prices in most lines.

The inventory period will be cut as short as possible. In many of the Indiana factories overtime was the rule in taking inventory so the plants could be idle as short a time as possible. Many of them, notably the container trade, were idle only Sunday, today and will be idle tomorrow for inventory, resuming operations on Wednesday. The box board factories are mostly in the same condition and will follow the same rule.

Holiday trade with the jobbers was brisk. This was particularly true of the paper bag and wrapping trade. Business among the users of these items was considerably better than it was a year ago. Tissues also benefited from the same causes. December business in newsprint also showed the increased business of advertisers. While no figures are available as yet, the lineage of Indiana papers will be far ahead of the amount the year before. The outlook for newsprint demand for the first quarter of the coming year is reported to be very brisk.

An optimistic note for the coming year is sounded by the makers of containers. This business has been flourishing during the last six months and reports from the larger consumers indicate a continued demand to start the new year. Most of the factories have low warehouse stocks and well filled order files. Demand for fine papers held up well during the past week, being perhaps better in proportion than several other lines.

Little change is seen in the paper stock field. Local leaders say mill demand is not what it should be and that offering prices are below their expectations. Better grades of paper and rags seem to be in a more favorable position than low grades.

NRA Approves Code Authority Members

The following have been recognized by NRA as duly elected members of the Code Authority for the Envelope Industry: E. V. Johnson, United States Envelope Company, Springfield, Mass.; M. P. Altschul, Standard Envelope Manufacturing Company, Cleveland; Walter J. Berkowitz Envelope Company, Kansas City, Mo.; George W. Hall, Coast Envelope and Leather Products Company, Los Angeles, California; E. K. Harms, Cupples-Hesse Envelope and Lithograph Company, St. Louis; W. W. Oles, Oles Envelope Corporation, Baltimore, Md.; F. W. Randolph, Heco Envelope Company, Chicago; L. G. Reineman, Buffalo Envelope Company, Buffalo, N. Y.; Carlton W. Smith, American Envelope Company, W. Carrollton, Ohio; Harold Smith, Western Envelope Manufaciuring Company, Kansas City, Mo.; and J. S. Wiley, Berlin & Jones Company, New York City.

Propose Change in Definition of Paper Trade

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Jan. 2, 1935—Selling agencies described as "super" jobbers and "del credere" agents, would be made subject to the provisions of the code for the paper distributing trade by an amendment proposed by the Code Authority and presented at a public hearing December 27, at the Washington Hotel. Assistant Deputy Administrator O. J. Libert presided.

A "super" jobber was defined as one who, acting as a jobber, in turn sells to other jobbers or wholesalers. A "del credere" agent, it was explained, is one who sells for the manufacturer of paper products, but assumes the credit risk for the account and guarantees its payment.

The attempt to bring under the code such distributing agencies was a revival of an issue that was raised when the application for the paper distributing code was made more than a year ago. These agencies applied for a code of their own but the application was rejected and the subsequent ruling that they are amenable to the terms of the paper distributing code has long been a subject of controversy.

Explaining the proposed change in the definition J. K. Davitts, counsel for the Code Authority, asserted that operating independently, or under the manufacturers' code, the jobbers and agents are threatening the demoralization of the trade by being in position to quote lower prices.

Lowell Whiteford, representing a distributor of New York, N. Y., supplemented the presentation of Mr. Davitts, asserting that in the wake of the "super" jobbers had come an army of sub-jobbers and "hat" jobbers, a class he described as those who have no office but who do business "under their hat." He insisted that until they are compelled to operate under the code they will be in position to evade its various provisions. He declared they have already virtually destroyed the eastern competitive market in coarser papers.

Support of the proposed amendment was made in a brief read for Lee D. Mahon, representative of a Baltimore firm, and a similar stand was taken by George J. Cobean of Chicago, Ill. Mr. Cobean displayed more interest however, in the activities of the manufacturers' agents.

Nathaniel Saxe, Philadelphia, Pa., himself a jobber but not of the "super" class, joined in the effort of the Code Authority to bring the allegedly disturbing agencies under the code.

Approval of the amendment also was urged by David J. Werner, New York, N. Y., representative of the fine paper distributors.

Very definite objection to approval of the change in the definition came from representatives of the attacked selling agencies. It was led by Warren I. Cubberley, Washington, D. C., an attorney for five such concerns. His position was supported by Jacob M. Holtzmann, a New York attorney, and Homer M. Lake, head of one of the New York agencies. They contended that for many years before codification of industry was conceived they had been doing business as they are now and that to force them under the distributors' code would mean bankruptcy for many of them.

Ernest A. Gross, general counsel of the National Graphic Arts Coordinating Agency, asked an opportunity for representatives of the graphic arts industries to join in any post-hearing conferences, explaining that as the most important group of consumers they were particularly interested and equally confused as to the merits of the case.

Daniel Moscow, secretary of the New York Employing Printers Association, also expressed his lack of a clear understanding of the issue. In principle he was in favor of approving the proposed amendment with certain reservations and qualifications.

Speaking for the manufacturers of paper stationery and tablets, Edgar P. Eaton, executive director of the Code Authority, protested against approval of the proposed change in the definition without there being inserted a clarifying sentence that would make it certain that it would not apply to the selling agencies of the manufacturer.

Another note of protest was that of Byrd Wise, New York, N. Y., who offered objections on behalf of the paper industry authority and the several divisions of the paper industry, and on behalf of the waterproof paper industry and the gumming industry.

The hearing was adjourned subject to the call of the Board.

S. L. Willson Sees Improvement

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 31, 1934—Sidney L. Willson, President of the American Writing Paper Company Inc., Saturday gave out his first forecast for the year 1935 of the paper manufacturing business as follows:

"In reviewing the conditions in the paper industry during the year 1934, we must use for comparison some of the preceding years.

"I think it is generally conceded that the worst period of the depression was during the summer of 1932. Since that time there has been a steady improvement. Statistics point to the fact that the year 1933 showed a decided improvement over the preceding year. In 1934 there has been even further improvement. The improvements that have taken place have partly resulted from some of the administration activities, but it can also be said that other administration activities have acted as a deterrent to improved business conditions because of the uncertainty of their effects. I believe that the real steady improvement is based on business economics and that it will continue. Industries of the country, I feel, will be given a freer hand than they have been, which will tend to eliminate some of the doubtful factors and create confidence, which is so essential to prosperity.

"The Paper industry as a whole is in much better condition than ever before. Through the operation of the code, greater and closer co-operation has been established; cut-throat competition has been practically eliminated. The level of prices has been to some extent standardized —although not at high levels. The industry, through its new plan of activity, has been able to secure the time and services of some of the most able men whose efforts have been given for the betterment of conditions within the industry, and the result of whose work and efforts has been an improvement in relations between unit mills and various divisions of the industry. This has been a difficult problem because of the diversity of products, and the enormous area covered by the mills extending from Coast to Coast and the Canadian border to the gulf states. The operating condition in the industry today shows an improvement of from twenty to twenty-five per cent over that existing in 1932.

"I look for continued improvement during 1935, although we shall doubtless have 'peaks and valleys' the same as in the past, but each peak will bring us up a little higher and a little nearer to normal business unless some radical laws or theories are thrown into the lap of industry. History repeats itself—and based on past history of depressions, I believe we are coming out of the present one and in 1936 or 1937 we shall again be enjoying real prosperity."

Crystal Tissue Co. Spends $50,000

That The Crystal Tissue Company, local manufacturer of tissue and waxed papers, is doing its share to help break the back of the depression is demonstrated by the $50,000 construction and improvement program now going on says the *Journal* of Middletown, Ohio. The money is being spent for a number of different projects, all of which will improve the efficiency of the mill and of the converting departments. Plans include the erection of a new water tank, the installation of modern ventilating equipment, the reflooring of the old mill, and the relocation of the converting departments, in that portion of the old mill which was completely rebuilt and modernized several years ago.

The water tank, which has just been completed, has a capacity of 60,000 gallons and is built entirely of steel to a height of 100 feet. It towers 40 feet above the old tank and has double the capacity which will give greatly increased protection against fire hazards. The new tank was erected by the Pittsburgh, Des Moines Steel Company. The old tank will be torn down in the near future.

Another part of the construction program is the rebuilding of the roof over the machine room of the new mill and the installation of modern ventilating equipment to improve the carrying off of steam arising from the drying of paper. Work on this will begin in the near future.

The rebuilding of beaters is also under way and will eventually include the complete modernization of the new mill beater room. Greater economy in operation and improved quality is the object in view.

Work is also progressing on the development of a white water system which will enable the company to save a goodly portion of the white water fibres which were previously wasted. In addition improvements have been made on the machines and technical equipment installed which will bring about a better degree of technical control throughout the entire mill. Three new technical men have been employed to help carry out this program, which will mean better control of both quality and costs.

Another step in the improvement program is the complete re-flooring of the building formerly known as the old mill. This building was completely rebuilt and modernized four years ago and will serve as a central point for converting operations. It will now house the departments manufacturing tissue rolls and interfolded toilet tissue as well as the Crystal Waxing Company, the affiliate which manufactures waxed tissue. The Crystal Waxing Company equipment will be moved from the building in which it is now housed and completely rearranged for the greatest possible efficiency.

Plans are under way for the installation of entirely new converting equipment which will enable the company to expand its lines and at the same time convert more of the tissue paper it manufactures.

The extensive improvement program on which the company has embarked indicates that the management has confidence not only in the business situation as a whole, but in its own products. It is demonstrating in a tangible way its willingness to cooperate in the President's plan for lifting us out of the depression.

Ask Executive Order 6646 Be Modified

WHEREAS, by Executive Order 6767 dated June 29, 1934, it was ordered that bids to agencies or instrumentalities of the United States or any State or Municipality by members of Industries in which Codes of Fair Competition require the filing of prices, might be made at a price not more than 15 per cent below the price filed by the bidder pursuant to the provisions of said Code, and

WHEREAS, the Paper and Pulp Industry is duly organized and functioning under a Code of Fair Competition duly approved, pursuant to the National Industrial Recovery Act, and

WHEREAS, the members of said Industry sell a substantial amount of paper and paper products to the United States and to States and Municipalities, and

WHEREAS, the Paper Industry Authority, the duly constituted agency for the administration of said Code, believes that the filing of price schedules pursuant to the terms of said Code is a desirable and necessary means of effectuating the object and policy of the National Industrial Recovery Act, and

WHEREAS, it has developed that by the aforesaid Executive Order, Federal, State and Municipal Agencies and Instrumentalities are placed in a favored and preferred position as opposed to business and industry generally and are thereby enabled to encourage destructive price cutting and unfair competition, and

WHEREAS, the said Paper Industry Authority believes that it is the policy of the National Industrial Recovery Act that uneconomic and destructive price cutting is not in the public interest, and

WHEREAS, there is no sound economic distinction to be made between purchases by Federal, State and Municipal Agencies and Instrumentalities, and those made by private business, and

WHEREAS, the said Executive Order has tended to cause and has caused demoralization in many markets for paper and paper products thereby endangering the maintenance of the provisions of said Code, especially the provisions relating to maximum hours and minimum wages, and

WHEREAS, reductions of the said 15 per cent tolerance even though made promptly, would not give adequate relief from the serious uneconomic disturbances in Industry caused by said Executive Order

THEREFORE, BE IT RESOLVED, that the President of the United States be requested to forthwith terminate the effectiveness of said Executive Order with respect to the Paper and Pulp Industry.

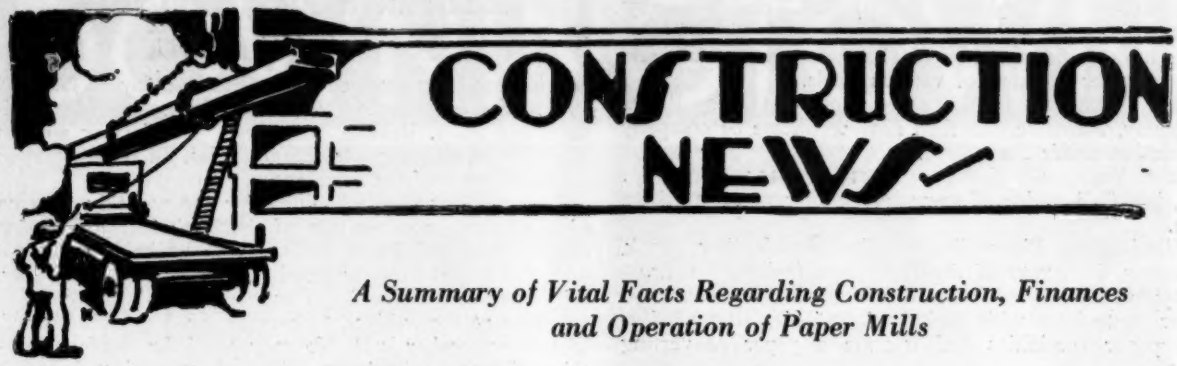
Canadian Pulp and Paper Convention

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 31, 1934—The 22nd annual meeting of the Canadian Pulp and Paper Association has been fixed for Friday, January 25, in the Pulp and Paper Research Institute here. The proceedings will include the President's address, reports from the various sections, the financial statement for the year and the annual election of officers. As in previous years, the annual meetings of the Technical and Woodlands Sections will be held the same week. That of the Technical Section will be held in the Engineering Institute on January 23, 24 and 25, and that of the Woodlands Section will be held in the Pulp and Paper Research Building on the same days.

To Sell Case Mfg. Co. Plant

HARTFORD, Conn., December 31, 1934—Public sale of the buildings and equipment of the Case Manufacturing Company of Unionville, manufacturers of paper, was ordered in Superior Court last week by Judge P. B. O'Sullivan on application of creditors. Judge O'Sullivan appointed John T. Dunn, Jr., as a committee of the court to conduct the sale on February 2 at 10 A. M. Clarence Belcher, receiver of the company, testified there was insufficient income to meet the expenses of the receivership, and told of his unsuccessful efforts to arrange for a private sale of the business.



A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Kalamazoo, Mich.—The Sutherland Paper Company, manufacturer of coated paper stocks, box boards and kindred paper products, has approved plans for new addition to mill, for which foundations will be laid at once. It will be two-story and basement, 110 x 340 feet, estimated to cost over $85,000, with equipment. General contract for superstructure has been awarded to the O. F. Miller Company, Kalamazoo.

Chicago, Ill.—The Anchor Paper Products Company, manufacturers of paper specialties, has arranged for increased capitalization from 100 to 5000 shares stock, no par value, for general expansion in operation.

Sandusky, Ohio—The Hinde & Dauch Paper Company, foot of Jackson street, manufacturer of corrugated paper boxes and containers, has completed plans for new one-story addition to mill at location noted, known as Plant No. 1, to be used primarily for storage and distribution. It will be 100 x 180 feet, reported to cost over $40,000, with equipment. Superstructure will be placed under way at once. Company is reported to be planning construction of an addition to one of its other local mill units, as soon as structure noted has been completed.

St. Louis, Mo.—Doane Carton Company has been organized with capital of $125,000, to manufacture folding paper boxes of large size and other kindred containers. Company will take over and operate the organization of same name, with local plant at 912 North Market street. W. W. Doane is principal incorporator of new company.

Appleton, Wis.—The Consolidated Water Power and Paper Company has plans for extensions and improvements in upper power house at its local Interlake Mill, to include installation of new equipment. Plans have recently been approved by the State Commission, and it is proposed to begin work soon. Estimated cost has not been announced. Thomas Utegaard, Wisconsin Rapids, Wis., is engineer.

Lawrence, Mass.—The Frank C. Meyer Company, Inc., 271 Lexington avenue, Brooklyn, N. Y., with branch plant at Lynn, Mass., manufacturer of shoe cartons and other paper boxes and containers, has concluded arrangements for lease of the former Katana Mill of the Monomac Spinning Company, Lawrence, comprising large modern structure, inactive for a number of years. Meyer company will take immediate possession and occupy for new plant, remodeling for requirements and installing machinery. The present Lynn factory will be removed to new location, with additional equipment installation to advance working force from 350 persons, as heretofore engaged at Lynn, to more than 500 operatives at Lawrence. Entire project is said to involve over $50,000.

New York, N. Y.—Harris Spar & Son, Inc., has been formed under State laws with capital of 100 shares of stock, no par value, to manufacture paper boxes and containers. New company will take over and succeed to Harris Spar & Son, with plant at 147 Baxter street. Carl Spar is one of the principal incorporators.

Oswego, N. Y.—The Johns-Manville Corporation, 22 East 40th street, New York, has concluded arrangements for a long-term lease of mill and equipment of the Oswego Board Corporation, Oswego, a subsidiary of the St. Regis Paper Company, New York, manufacturer of fiber insulating board products. The mill has a rated output of 150,000 sq. ft. in 24-hour day, and will be developed for a large production schedule by leasing company, which has acted as sole selling agent for the products of the Oswego mill since it began operations in 1928. The Johns-Manville Corporation will have complete control over plant production in the future.

Otsego, Mich.—The Otsego Falls Paper Mills, Inc., recently organized under State laws with capital of $100,000, plans early operation of a paper mill in this vicinity. New company is headed by Herman J. Finder, 415 Aldine avenue, Chicago, Ill.

Hartford, Conn.—The M. S. Dowd Carton Company, manufacturer of paper boxes and containers, has filed notice of increase in capitalization to $19,700 for general operations.

Troy, Ohio—The Gummed Products Company, manufacturer of gummed paper tapes and similar paper goods, has final plans for new addition to plant, recently referred to in these columns, and will carry out construction in conjunction with a general expansion and improvement program now in progress at the mill. New unit will be one-story, equipped for large capacity. Entire project will cost approximately $200,000, with machinery. John H. Deeken, Times-Star Building, Cincinnati, Ohio, is architect.

Louisville, Ky.—In connection with a $1,000,000 expansion program now under way at the plant of the Frankfort Distilleries, Inc., near the city limits of Louisville, it is proposed to install new packaging and carton equipment for sealing company products in cartons for distribution. This feature of the work will be carried out early in the spring, when construction will be placed under way on a large bottling plant.

New Companies, Etc.

New York, N. Y.—The Caribbean Paper Supply Company, Inc., has been incorporated with capital of 100 shares of stock, no par value, to deal in paper goods of various kinds. New company is represented by I. Michael, 40 Wall street, New York, attorney.

Wilmington, Del.—The Gilman Fanfold Corpora-

tion, care of the Delaware Registration Trust Company, Delaware Trust Building, has been incorporated under State laws, with capital of $100,000, to manufacture and deal in paper products of various kinds.

East Hartford, Conn.—The Taylor-Atkins Paper Company, Burnside, has filed final certificate of company dissolution under State laws.

New York, N. Y.—The Hersey Paper Company, Inc., has filed notice of company dissolution under State laws.

Wilmington, Del.—The Pacific Manifolding Book Company, Inc., care of the Delaware Registration Trust Company, Delaware Trust Building, has been chartered under State laws with capital of $100,000, to manufacture paper specialties and operate a paper converting plant.

Chicago, Ill.—The Lanzit Corrugated Box Company, 2425 South Rockwell avenue, manufacturer of corrugated boxes and containers, has filed notice of change in capital from $160,000 to $30,000 shares of stock, no par value.

Lagerloef Trading Co. To Be Exclusive Agent for Diesen Pulps

The Lagerloef Trading Company, Inc., 52 Vanderbilt avenue, New York, has sent out the following announcement:

"We are pleased to announce our appointment, effective January 1, 1935, as exclusive selling agents for this market of Diesen brand, bleached, semi-bleached and chlorinated kraft pulps, also bleached poplar sulphate, manufactured in Finland.

"The O/Y Diesen Wood Company A/B are members of the Finnish Cellulose Association, whose sole agents we have been since the inception of their business in this market, sixteen years ago, and we are pleased to welcome the addition of the Diesen pulps to the large group of mills we already represent, thereby enabling us to serve you with a type of pulp that we have not heretofore handled.

"We shall be pleased to submit samples and prices upon request and we solicit your inquiries."

In this connection, it may be regarded as an interesting piece of information to state that the Lagerloef Trading Company has acted as the exclusive selling agent in this market since the inception of its business here more than sixteen years ago, of the Finnish Cellulose Association which is a selling combination of all the chemical pulp mills in Finland, excepting one. In the year 1919 the total chemical pulp production of Finland was less than 100,000 tons, whereas for the year 1935 it is estimated to be in excess of approximately 735,000 tons of sulphite and 235,000 tons of kraft.

The Lagerloef company ever since the inception of its business here has made monthly shipments the year around, during the winter as well as the summer months, in addition to which and because of the number of mills that it represents, it is able to offer at least one and usually several different pulps for practically every paper making purpose.

The company feels that these facts warrant every user of chemical pulps in giving consideration to Finland as a very important source of supply.

Japanese Paper Production Gains

Japanese paper production in October showed a slight gain over the preceding month, but was accompanied by a decline in sales, according to an announcement by the Japanese Paper Manufacturers' Association.

MILLS ANTICIPATE GOOD YEAR

(Continued from page 11)

meeting has been changed to the last Tuesday in January. The amendments were certified by C. A. Babcock, president, and H. J. Behnke, secretary. The former amount of stock outstanding was 2,500 shares, all of which was voted in favor of the revisions.

Two speakers are scheduled for the monthly meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, to be held January 8 with a dinner at Conway Hotel, Appleton, Wis. P. C. Day, chief engineer of the Falk Corporation, Milwaukee, Wis., will present the subject, "Gears in the Paper Industry." The other speaker is R. M. Radsch, of the Appleton Machine Company, Appleton, Wis., whose subject is, "The Vortex Beater."

A meeting of the board of trustees of the Institute of Paper Chemistry, Appleton, Wis., will be held at the Waldorf Hotel, New York City, January 11, according to Dr. Henry Merritt Wriston, president of Lawrence College, and director of the Institute. Westbrook Steele, executive secretary of the Institute, will also be among those present from the local staff. The meeting was scheduled in New York because of other gatherings of paper manufacturers there at that time.

Salesmen of the Patten Paper Company, Ltd., Appleton, Wis., held a two-day conference at the home office last week. The session was conducted by A. C. Remley, vice president, who outlined the plans for increasing the volume in the year ahead.

An evening printing class has been organized by the Banta Publishing Company, Menasha, Wis., for its employees. John Geiger, composing room foreman, will be the instructor. Every process in the manufacture of books and magazines will be studied.

Champion Gives Biggest Yule Party

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 31, 1934—Reference to the holiday affair given by the Champion Coated Paper Company in Hamilton, the past week, shows that it was regarded as "the world's biggest Yule party," and this is probably true as upward of 10,000 persons participated as guests. Never before had there been a similar distribution of Christmas trees as more than 9,000 evergreens were distributed.

Alexander Thomson, president of the company, and who also is president of the Ohio Chamber of Commerce, said: —"My sincerest wish for all is a glorious Christmas and a better and more prosperous year than we have ever experienced.

"While the whole world has been torn with industrial strife, and armed forces have taken their toll, Champion, through mutual confidence and trust, has gone serenely ahead.

"These confidences have been built up over a period of years during which we have had our ups and downs and we have come out of them with a greater confidence and a greater unity."

Mr. Thomson, as the head of the Hamilton Chamber of Commerce, in addition to this industrial post and his official position with the state organization, was identified with the "Christmas-in-Every-Home" project in Hamilton. Baskets and packages for 2500 families were prepared and distributed the day after the Champion's party. Scores of Hamilton's residents took part in the open-house program at the Community Christmas store on High street, near Eighth, where the packing was completed.

DOWNINGTOWN

Only One Crown is Exactly Suited

The crown of monkey press rolls on the conventional board machine is exactly suited to only one weight of board, just like any one hat will only fit a head of one size and shape. Frequent re-grinding is thus necessary because of wear and change-over to a different weight or grade of board. With the Downingtown Duo-Dehydration Press Part, one Rubber Covered Suction Primary Press Roll takes the place of the battery of monkey presses, and will run safe on all weights without re-crowning. Maintenance costs are thus drastically cut, and further with fewer nips through which the felt must pass, a finer felt may be used for a longer time. Names of mills using Downingtown Duo-Dehydration sent on request. The Downingtown Mfg. Co., Downingtown, Pa.

Duo-Dehydration is covered by patents granted and applied for.

No Board Machine is Modern *Without* DUO-DEHYDRATION

PAPER TRADE JOURNAL
ESTABLISHED 1872

15 West 47th St., New York, N. Y.

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Price, Per Copy, 10 Cents

United States, Per Annum, $4.00

Canada, including tax, $7.50; Foreign Countries in Postal Union, $6.00

Member Audit Bureau of Circulations

Vol. C New York, January 3, 1935 No. 1

This publication is now and always has been printed on paper made in the U. S. A.

COMING EVENTS

American Paper and Pulp Association, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

Technical Association of the Pulp and Paper Industry, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

Salesmen's Association of the Paper Industry, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

New York Association of Dealers in Paper Mill Supplies, Annual Banquet, Hotel Commodore, Wednesday, February 20.

National Paper Trade Association of the United States, Convention, Waldorf-Astoria Hotel, New York, February 18-20.

Canadian Pulp and Paper Association, Annual Meeting, Montreal, week of January 21.

Technical Section, Canadian Pulp and Paper Association, Annual Meeting, Montreal, January 23-25.

DURABLE GOODS INDUSTRIES STUDIED

Industries producing durable goods, as contrasted with those providing services and consumption goods, are being studied closely in year-end appraisals of the outlook for 1935 according to a survey just completed by the Guaranty Trust Company. The attention paid to this phase of the recovery problem results from increasing recognition of the fact that the durable goods industries have experienced more severe depression and unemployment than the others. Relief and recovery measures directly designed to increase consumption have failed to stimulate activity in the durable goods industries to the extent that was hoped and expected.

There is evidence that the Government and business, too, are placing greater emphasis on this central feature of the recovery problem, the report reports.

During a period of prosperity expenditures for productive equipment and other durable goods apparently exceed the growth of wealth through money savings; the excess expenditure is financed by credit expansion.

When the reaction comes, the process is reversed; investments in capital goods lag behind current savings and credit is liquidated, the Survey points out. Variations in the flow of capital into durable goods are thus exaggerated by developments in the credit cycle.

Early efforts to stimulate recovery were concerned with consumers' purchasing power on the theory that an increase in the demand for consumers' goods would create a demand eventually for the industrial equipment used in producing these goods.

This theory is still widely held and probably contains a measure of truth. Recent experience indicates, however, that devices of this kind are not sufficient to bring about a recovery in the durable goods industries. Exactly what measures are required to achieve this result is, to some extent, a debatable question; but leading governmental and business authorities seem to be in fairly close accord on certain fundamental aspects of the problem.

The survey says: "Some of the conditions essential to a recovery in the durable goods industries have already been brought about, partly by the operation of natural economic forces and partly by the constructive features of the Government's program. As a result of the inactivity of the last few years, there has undoubtedly accumulated a large supply of private capital funds seeking safe and profitable investment opportunities, together with a positive need for durable goods of many kinds.

"A recent study by the National Bureau of Economic Research, supplemented by an estimate for 1933 by the Durable Goods Industries Committee, indicates an aggregate shrinkage in the resources of business amounting to about $32,698,000,000 during the four years from 1930 to 1933, inclusive.

"No direct statistical evidence exists regarding the amount of capital funds available for investment, but a number of factors suggest that both accumulated savings and potentialities for credit expansion are present in large quantities. There is no doubt that the position of the banks has been vastly improved."

CHEMISTS COOPERATE

The Association of Consulting Chemists and Chemical Engineers, Inc. was organized in 1928 to promote the interests of those members of the chemical profession who are engaged in independent consulting and analytical practice. There was a need for such an organization, since none of the existing chemical societies afforded an opportunity for consultants to come together for the solution of their common problems. One of the first undertakings of the association was to formulate a code of ethics. This code was recently revised with a view to clarifying and simplifying its provisions in the light of the six years' experience that have elapsed since it was first drafted.

The need for a national organization in this field is even greater now than it was when the association was founded. The independent consultant and the private laboratory can afford to play a lone hand less than ever. It is only through some such organization that he can effectively combat encroachment on his proper sphere of activity by government bureaus, universities and other in-

stitutions supported by public funds. Besides there is much constructive work which can be done. Small and moderate sized business organizations can be told how they may keep ahead through technical control and research without prohibitive expense. Those organizations large enough to support their own laboratories can be shown the advantages of outside contacts. The field for technical audits can be stimulated through cooperative action. Product certification is another field which is practically undeveloped and is being studied by the association with a view to determining what form of control is necessary for its healthy development.

The association has members in the New York, Boston, Philadelphia, Chicago, St. Louis and San Francisco districts. Most of its members have been drawn from New York, Boston and Philadelphia. Although membership is by invitation, it is the policy of the association to extend invitations to all chemists and chemical engineers engaged in independent practice whose qualifications are such that they would be acceptable for the highest grade of membership in the American Institute of Chemists or the American Institute of Chemical Engineers and whose personal and business reputation is in keeping with the standards of the Association.

The association's purpose of drawing to itself a larger membership has been frustrated in part by the depression, many of those invited having felt that under existing conditions the entrance fee and dues were more than they could afford. The association has accumulated a fair sized surplus and advantage has been taken of this to reduce the entrance fee. It is hoped that this will result in drawing in a number of men whose cooperation in the work of the association is desired.

The association's headquarters are at 50 East 41st street, New York City. The officers are Thomas A. Wright, Lucius Pitkin, Inc., president; Frank G. Breyer, Singmaster & Breyer, vice-president; Paul Mahler, secretary; Alvin C. Purdy, Bull & Roberts, treasurer; Robert T. Baldwin, executive secretary.

Terminal Paper Bag Co. Starts

[FROM OUR REGULAR CORRESPONDENT]

MOBILE, Ala., December 31, 1934—Production has begun at the new $120,000 plant of the Terminal Paper Bag company, Mobile's newest manufacturing acquisition, at Magazine Point, with over 200 persons employed and another 100 workers soon to be added, Charles Mintz, general manager, announced yesterday.

Turning out bags of every type, from the little ones for penny purchases of candy to the largest grocery sacks, and pokes for special purposes, the Terminal company has a modern, fire-proof factory structure built to its specifications, adjoining the giant mills of the Southern Kraft Corporation, said to be the largest of its type in the world, at Magazine Point.

Material for the bags goes directly into the Terminal company's 500 by 100-foot factory from the Southern Kraft paper-making machines, and is turned out into thousands of sacks hourly.

Construction of the Terminal building was started July 16, and was rushed through in record time to take care of the many orders on hand.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for the designated periods.

	Reporting Mills		Total Production
	Number	Capacity	Ratio
September, 1934	292–299	.....	59.4%
October, 1934	297–375	.....	64.7
November, 1934	375–391	.....	61.0
* Week ending December 8, 1934	378	153,139	61.2
* Week ending December 15, 1934	380	164,299	65.5
* Week ending December 22, 1934	223	86,873	59.7

* Subject to revision.

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting Week Ending		
	Dec. 8	Dec. 15	Dec. 22
Ratio Limits	1934	1934	1934
0% to 50%	153	139	97
51% to 100%	225	241	126

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

September, 1934	62 per cent
October, 1934	63 per cent
November, 1934	56 per cent
December 8, 1934	56 per cent
December 15, 1934	57 per cent
December 22, 1934	63 per cent

Revised statistics covering delinquent mill returns will be shown in later reports.

Newsprint Exports Sharply Up

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 31, 1934—A report of the Dominion Bureau of Statistics shows that the value of newsprint exports from Canada in November were sharply higher than in the same month last year, and also higher than in the previous month. For November, 1934, exports were valued at $7,678,966, which compares with $5,828,878 in November, 1933, and $6,958,945 in October, 1934.

The increase in value reflects the expansion of tonnage in November, when exports amounted to 221,553 tons as compared to 162,292 in November, 1933, and 204,904 tons in October, 1934.

November exports to the United States, principal market for Canadian newsprint, were valued at $5,754,512 out of the month's total of $7,678,966.

For the eight months of the Dominion's fiscal year—that is, April to November inclusive—exports of newsprint were valued at $54,621,556 as against $47,893,324 for the corresponding period of last year. The tonnages were 1,595,305 and 1,279,237 tons respectively.

To Manufacture Facial Tissues

HARDWICK, Mass., December 31, 1934—Wheelwright Properties, Inc., new owner of the old Wheelwright Paper Manufacturing Company property in Wheelwright, plans to begin operations January 10 for the manufacture of facial tissues, says the *Boston News Bureau*. Orders are said to have been received sufficient to keep 150 persons employed for 12 months. A converting plant will be operated in conjunction with the paper mill.

Thank heavens it's washable

SAYS MRS. JACKSON ☆

Jerry leaves his mark wherever he goes. Not so long ago a smudge like this would have ruined the looks of the whole room . . . required costly repairs — or possibly a complete repapering job.

But Mrs. Jackson doesn't worry. She knows that this paper can be washed as quickly and easily as woodwork. A few strokes with a wet sponge or rag and the paper is as good as new. Not a spot or streak . . . and the colors are as bright and clear as the day they were put on.

Mrs. Jackson — and thousands like her — are thanking heavens for *washable* wall paper today.

Mrs. Jackson doesn't know what goes into wall papers like this that stand up under repeated washings . . . give longer life to papering jobs . . . save care and money for the people who buy them.

But every manufacturer knows that it can't be done without proper coatings . . . high grade Casein and Formaldehyde . . . on well sized hanging stock.

We offer you a clean, uniform Casein made under rigid technical control to produce characteristics suitable for this purpose. . . . Also high quality Formaldehyde and other agents used for setting.

★ The Jacksons are a typical American family. They are neither rich nor poor. They have money to spend. They know what they want — and what they can afford. They may not buy scientifically but they buy practically . . . are alert, quick to recognize new standards. To keep the Jacksons buying your product — keep improving it. They will respond . . . with purchases.

American Cyanamid

AND CHEMICAL CORPORATION

30 Rockefeller Plaza • New York, N. Y.

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Delthirna Sizing Process*

By A. E. Montgomery[1] and T. G. Batchelor[2]

The Delthirna Sizing Process, introduced into this country during the latter part of 1930, originated in the Research Laboratories of the Navarre Paper Company, one of the largest paper and board manufacturers of France. Previous to its introduction into this country it had been widely adopted by paper and board mills throughout Europe, having established itself a definite improvement over other sizing methods.

This process was an innovation in the practices of sizing papers and boards insofar as the transformation of rosin into size ready for the beaters was obtained entirely in the cold state. Mr. Delcroix, the inventor of this process, early realized in his researches that the saponification of the rosin with sodium carbonate was not entirely satisfactory and determined to discover if possible some other reagent which could be used in a more satisfactory manner. His work in this direction led him to the discovery that a weak solution of caustic soda will combine with rosin at normal temperatures and in such a manner as to give a very fine dispersion of the rosin. Various concentrations of sodium hydroxide were used and it was found that the best results were obtainable using a half of one per cent caustic solution. At this concentration and at a minimum temperature of 60 deg. F., a completely saturated solution of rosin at a strength of 4 per cent was obtained, the rosin being in an extremely fine state of dispersion.

Process Details

To apply this invention in actual practice it is only necessary to pass the weak solution of sodium hydroxide over coarsely broken rosin and to allow sufficient time for the caustic to react with the rosin to give a saturated size solution. However the present Delthirna units were designed to give not only a simple and automatic operation but also a continuous supply of size solution. Starting with a volume of caustic soda solution at the given concentration, a fractional horse-power motor pump continuously raises this diluted caustic to a head-box from where it passes by gravity through a large tube and a series of "U" Tubes which are filled with broken rosin. The dimensions of these tubes and the rate of flow of the dilute caustic are so calculated for a given production of size that the solution, on leaving the last "U" tube, is an absolutely saturated solution of sodium resinate.

With dilute caustic tanks of sufficient capacity to supply a 24 hour run, the preparation of the size is as follows: A definite quantity of sodium hydroxide is diluted to the required concentration, coarsely broken rosin is shovelled into the rosin tubes until these are well filled and the electrically driven pump is started. The unit will operate automatically and continuously for 24 hours. The system is so set up that it will not overflow. When the size reserve tank is full the liquid level rises in all the tubes and the head-box as well, thereby causing the caustic soda solution to return to the diluted caustic tank, through an overflow pipe.

Simplicity of Control

One of the main advantages of this process is the absolute uniformity of the finished size. When it is realized that the Delthirna solution is a saturated one it is easy to understand that at all times it must be at uniform strength.

The preparation of rosin sizes with other cooking methods necessarily entailed careful supervision and control to assure satisfactory results. We will not go into comparison between other methods and Delthirna in this respect as the above description of the automatic operation of the unit sufficiently brings out its utter simplicity.

At the present time 27 Delthirna units are in satisfactory operation in this country and three further units are on order. The present users of the system list the following advantages as compared with other methods: (1.) Greater uniformity, (2.) Simplicity of operation with minimum of control, (3.) Reduction in sizing costs resulting from purchase of raw rosin instead of prepared sizes, (4.) Cleanliness of entire process, and (5.) Cleanliness of the size solution (any foreign matter remaining in the base of the tubes and not being carried over with the solution).

In conclusion we would add that the majority of mills have at one time or another manufactured their own size with cooking methods. Those able to give this factor of paper manufacturing careful technical control are still doing so. However the control required and the variations in results obtained induced many mills to dispense with mill made size. We sincerely believe that the advent of Delthirna in the sizing field has made it possible for mills to again make their own size and without the necessity of close technical control to assure uniform and satisfactory size, day in and day out.

* Presented at the meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, Appleton, Wis., Dec. 11, 1934.
[1] Member TAPPI, Engineer, J. O. Ross Engineering Company, Chicago, Ill.
[2] J. O. Ross Engineering Corp.

Surface Application of Titanium Pigments*

By William R. Willets[1]

Abstract

The application of titanium pigments to the paper web in conjunction with starch sizing solutions is briefly described. Methods of making such pigment-size suspensions are given in some detail. The results of applying pure titanium dioxide, a titanium dioxide—barium sulphate composite (Titanox-B) and a titanium dioxide —calcium sulphate composite (Titanox-C) to 9 pound and 18 pound rag content bond papers are given.

The general application of titanium *(Titanox)* pigments to the paper industry has been discussed in earlier papers *(1) (2) (3) (4)*. Other articles dealt more particularly with the beater addition of titanium pigments *(5) (6)*.

The only serious difficulty in the use of titanium pigments as beater fillers lies in the fact that a certain amount is always lost through the machine wire. This loss, while considerably less than for the ordinary fillers, may still be appreciable from the cost standpoint where a mill has no white water or save-all system.

For this reason certain mills prefer to apply titanium pigments to the surface of the sheet, in conjunction with surface sizing solutions. Such a size-pigment suspension can be readily and easily made and applied. Successful pigmentation of surface size depends primarily on the suitability of the pigment, particularly its fineness, texture and dispersive properties. These desirable characteristics are all found in titanium *(Titanox)* pigments.

Preparation of the Suspension

In preparing a suspension of titanium pigments in a starch surface size solution, care must be taken that the pigment is first made into a thoroughly uniform and well suspended water slurry. This can best be accomplished by means of a high speed stirrer. This slurry is then intimately mixed with a well cooked starch solution.

The following convenient method was developed by the Titanium Pigment Company and has been successfully used in mill trials. Forty gallons of water are added to a 50 gallon barrel followed by 150 pounds of a titanium pigment. This is agitated by means of a high speed stirrer of the Lightnin' type until thoroughly suspended. In a separate tank, 150 pounds of starch are cooked with 325 gallons of water. The pigment suspension is then added and the whole intimately mixed.

Naturally, the amounts given must be varied to suit individual conditions. The salient points are first to secure a uniform suspension of pigment in water, to cook thoroughly the starch, and then to insure an intimate mixture of the pigment slurry and the starch solution.

A starch-pigment mixture made in this manner will remain suspended almost indefinitely, with little or no agitation. This is probably the result of the fineness and uniformity of the pigments.

Methods of Application

There are almost innumerable methods of applying such a starch-pigment suspension and naturally the exact procedure to be used will depend on mill conditions.

If the mill is already using a size tub as a separate operation, the ordinary size may be replaced readily by such a titanium pigment-starch mixture. A common method of surface sizing is to break the drier stack near the center and then to run the paper through a slot in the floor, through the size tub and then up to the driers again, where drying is completed.

A pigmented size suspension may also be used in place of ordinary size on the calendar stacks.

The above methods are all fairly well understood, but in comparatively recent times strides have been made in applying size and pigmented size suspensions on the wet end of the paper machine. There are almost innumerable ways of performing this operation, but only a few will be indicated herein.

One of the common methods consists of spraying such a pigmented size suspension on the machine wire, between the couch and the presses, between the presses or at any other convenient point. A recent method of application is to spray the pigment-size suspension on the dandy roll and thus to actually use the dandy to apply the mixture to the paper web.

Another method is to drop the felts before the last press and to use this press as a sizing apparatus, by means of suitable fountain rolls or other feeding devices.

These few indications will serve to illustrate the many ways for using titanium pigments as a surface application. Naturally, the exact method must depend on individual mill conditions.

Results

Surface, or tub sizing gives paper a smooth surface that will take ink without picking up fibers, reduces fuzz, increases ink resistance, strength, hardness, and stiffness and results in a better "feel." However, when paper is sized

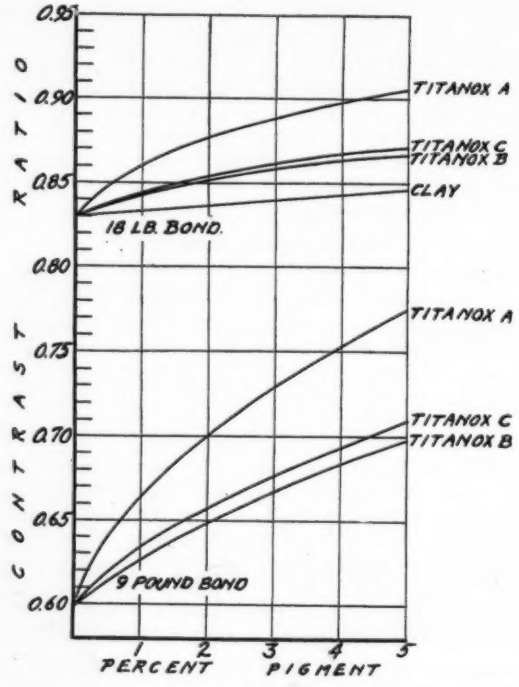

FIG. 1

* To be presented at the annual meeting of the Technical Association of the Pulp Industry, New York, N. Y., Feb. 18 to 21, 1934.

[1] Member TAPPI, Paper Development Laboratory, Titanium Pigment Co., Inc., 105 York Street, Brooklyn, N. Y.

in the ordinary manner with an unpigmented surface size it tends to lose a certain amount of color, brightness and opacity. The use of titanium pigments will more than overcome these losses of essential properties.

This is clearly indicated when the results of tests made on an experimental tub-sizing machine are considered. Fig. 1 shows the actual increases in opacity resulting from the use of three titanium pigments; Titanium dioxide *(Titanox-A)*, a titanium dioxide—calcium sulphate composite (*Titanox-C*) and a titanium dioxide—barium sulphate composite *(Titanox-B)*. In one case, a very high coating grade of English china clay was used for comparison.

It will be noted that titanium dioxide *(Titanox-A)* gave by far the greatest opacity increase. The titanium-calcium composite *(Titanox-C)* was slightly better than the titanium-barium composite *(Titanox-B)*, but this was not strange as the former contained 30 per cent titanium dioxide as against 25 per cent for the latter. It will be noted that clay caused comparatively slight opacity increases.

It is interesting to note, also, that the proportionate increases obtained with the less opaque nine pound rag bond were much greater than the increases obtained with the more opaque, eighteen pound bond. In other words, the effect of titanium pigments is greater on papers which have poor initial opacity. This coincides with the findings on beater-filled papers; that is, the proportionate increase in opacity was greater for more transparent papers *(5), (6)*.

Effect on Physical Properties

The effect of surface sizing on various physical properties is given in Table I. It will be seen that the use of an unpigmented size increased the basis weight of the nine pound paper from 9.1 to 9.35 pounds, an increase of about 2.8 per cent. However, in the case of the heavier paper, the weight was increased from 18.3 to 19.3 pounds, or about 5.5 per cent. This probably resulted from the fact that the heavier paper actually absorbed more size than the lighter one. However, increases in Mullen (bursting) strength were much greater than increases in basis weight, from 17.9 to 21 pounds (or about 18 per cent) for the lighter paper, and from 27.4 to 39.2 (or about 43 per cent) for the heavier paper. The increases were greater for the heavier paper, probably because of the greater absorption of the size. Apparently the tearing strength was not affected one way or the other. The caliper showed slight tendencies to increase but this might have resulted from the fact that the sized paper was not refinished.

TABLE I
AVERAGE EFFECT OF SURFACE SIZING ON PHYSICAL PROPERTIES

	Original Paper Not Sized	Paper Sized With Starch Alone	Paped Sized With Pigmented Surface Size, Per Cent Pigment on Sheet	
			2	4
18 Pound Rag Bond				
Basis Weight, Pounds, 17x22—500..	18.3	19.3	19.9	20.2
Mullen, Pounds per square inch....	27.4	39.2	38.0	38.0
Tearing, Grams (Ave. both directions)	57.0	58.0	57.0	57.0
Caliper, (ten thousands of an inch)	32.0	34.4	35.0	35.2
9 Pound Rag Bond				
Basis Weight, Pounds, 17x22—500..	9.1	9.35	9.6	9.7
Mullen, Pounds per square inch....	17.9	21.0	20.7	21.0
Tearing, Grams (Ave. both directions)	21.0	20.0	20.0	20.0
Caliper, (ten thousands of an inch)	18.7	18.9	18.8	18.8

Naturally, as will be seen from the figures of Table I, the use of a pigmented size increased the basis weight more than an unpigmented size. The increases in bursting strength were practically the same regardless of whether the size was pigmented or not.

It should be remembered that the type of starch will be a factor in increasing the bursting strength. For example, it has been shown *(7)* that a "hydrolysed" starch increased the bursting strength 31.7 per cent while an "oxidized" starch increased the bursting strength 37.1 per cent, although the increase in basis weight was greater for the former (6.9 per cent) than for the latter (5.9 per cent).

While the question is beyond the scope of this paper it might be well to indicate that various conditions, such as the type of starch, type of paper being sized, amount of size actually applied to the paper, and possibly other factors having to do with the actual sizing operation (temperature, concentration of size, etc.) will all have their effect on the ultimate basis weight, bursting strength and other physical characteristics of the sized sheet.

However, it was clearly shown that the addition of a titanium pigment to the size will not adversely affect the beneficial characteristics bestowed by it to the paper, and will greatly enhance the opacity, color and brightness of the paper.

General Use

One of the most promising fields for the use of a size pigmented with a titanium pigment is for the manufacture of offset papers, which are often surface sized to reduce fuzz and to give a finish suitable for the use of the offset process. High opacity, color and brightness are also factors and these may readily be obtained by the use of a size pigmented with one or another of the titanium pigments, selected to suit the needs of the individual case.

Titanium pigments are used in a surface application to improve the opacity and color of catalogue and magazine papers. They are also employed on groundwood book paper.

Many types of high grade ledgers and bonds are surface sized to improve not only their general physical characteristics but also to improve the ease with which erasures may be made. Here again, the use of titanium pigments in conjunction with the size will materially opacify, brighten and whiten the paper.

Surface application of titanium pigments has also been used on boards, where it tends to improve the general appearance and surface of the board, and to prevent the liner from showing through. It is possible, in many cases, to reduce the weight of the top liner without detracting from the appearance of the board.

It is evident, then, that the surface application of titanium pigments may be employed on a great many different types of papers, using almost innumerable modifications of application. As has previously been pointed out, every proposition must be handled from its own individual angle and what might be a successful mode of operation in one mill (or on a particular grade of paper) might not be satisfactory in another.

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Opacity Standards*

By Deane B. Judd[1]

Abstract

Opacity of paper is commonly specified by the contrast-ratio method. According to this method the reflectance of the material backed by a perfectly absorbing surface divided by its reflectance when backed by a highly reflecting material such as magnesium oxide is taken as an index of opacity. Magnesium oxide, itself, is, however, commonly not used as the white backing because of its fragility; nor is the white backing placed in actual contact with the sample. Because of these and other sources of error, opacimeters frequently give erroneous results. Standards of opacity made of permanent material serve to check and to calibrate such instruments. Such standards made of opal glass are described, the theory of their application is given, and results of tests by their use reported. It is found that TAPPI opacity corresponds to a reflectance of white backing in contact with the sample of about 0.89.

The opacity of a sheet of any material (paper, cloth, porcelain, and the like) may be specified by its contrast ratio. Contrast ratio is defined *(1)* as the apparent reflectance of the material backed by a perfectly absorbing surface divided by its apparent reflectance when backed by magnesium oxide. Because of the fragility of magnesium oxide surfaces, opacimeters for routine determinations are commonly made with white backings other than MgO and sometimes these surfaces are protected by the interposition of an air space, a cover glass, or both. The official method of the Technical Association of the Pulp and Paper Industry (the TAPPI method) *(2)* for the determination of opacity of paper is an example of this practice. The errors which may arise through these deviations from the definition have been discussed for perfectly diffusing, nonabsorbing materials and the theoretical expressions derived were shown to apply closely to a few paper and opal-glass samples. *(3)*

A standard of opacity made of a permanent material is of use in checking the adjustment of opacimeters. Two sorts of such standards have been prepared. They are (1) solid-opal glass, ground to nearly uniform thickness, one face fire-polished, the other fine-ground, and (2) flashed-opal glass, the flashed face fire-polished, the other face fine-ground. It is the purpose of this paper to describe tests of these standards, to outline the method of checking an opacimeter by their use, and to show the relation of TAPPI opacity to contrast ratio.

Theoretical Relations

In the interpretation of tests on the standards use is made of three relations derived theoretically from the assumptions (1) that the samples are homogeneous, (2) that both sample and backings reflect light in a perfectly diffuse way, and (3) that the samples are sufficiently thin that no appreciable amount of light is lost through the edges. The following symbols are used:

R_0 = the reflectance of the sample when in contact with a backing of zero reflectance,

R_1 = the reflectance of the sample when in contact with a backing of unit reflectance,

$R_{R'}$ = the reflectance of the sample when in contact with a backing of reflectance, R',

$C = R_0/R_1$, called the ideal contrast ratio,

$C_{.97} = R_0/R_{.97}$, called the true contrast ratio according to the definition which specifies as the white backing magnesium oxide, for which $R' = 0.97$, *(4)*,

$C_{R'} = R_0/R_{R'}$, called the measured contrast ratio when the reflectance of the surface or cavity in contact with the back of the sample is R',

s = the number of standard scattering layers required to duplicate the scattering produced by unit thickness of the sample,

x = the thickness of the sample varying from zero up to the thickness for which light escaping through the edges of the sample becomes appreciable,

R_∞ = the reflectivity of the material, that is, the reflectance of the material of the sample in a layer infinitely thick.

Measured Contrast Ratio as a Function of Reflectance of White Backing and Reflectance of Sample

$$C_{R'} = \frac{C(1-R'R_0)}{C(1-R')+R'(1-R_0)} \qquad (1)$$

This formula may be derived by argument analogous to that used in deriving equation 4 in a previous paper *(3)* which applies to nonabsorbing samples. For a nonabsorbing sample, $C = R_0$; for this case equation 1 reduces to the previous result. Similar lines of reasoning have been used by Channon, Renwick, and Storr *(5)* and, still earlier, by Stokes *(6)* in the derivation of an expression for $R_{R'}$. The expression $C_{R'}$ for nonabsorbing samples also follows directly from a formula for $R_{R'}$ derived by Kubelka and Munk by independent argument. *(7)*

Measured Contrast Ratio as a Function of Thickness and Scattering Power of Thin Samples

$$\left.\begin{aligned} C_{R'} &= R_0/R_{R'} \\ R_{R'} &= \frac{(R'-R_\infty)/R_\infty - R_\infty(R'-1/R_\infty)e^{sx(1/R_\infty - R_\infty)}}{(R'-R_\infty)-(R'-1/R_\infty)e^{sx(1/R_\infty - R_\infty)}} \end{aligned}\right\} \qquad (2)$$

The expression for $R_{R'}$ is the one derived by Kubelka and Munk *(7)* as their equation 5. R_0 is found by setting $R' = 0$.

Measured Contrast Ratio as a Function of Reflectance of the Black Backing for Thin, Nonabsorbing Samples

$$R_{R'}/R_1 = \frac{C+R'-2R'C}{1-R'C}$$

This formula is derived by argument similar to that used for equation 4 in a previous paper *(3)*. Since the black-lined cavities used in opacimeters commonly reflect less than 0.002, application of this formula discloses that errors from deviation of the reflectance of the black backing from zero are negligible; for paper samples they are less than 0.001. No further attention will be paid to this source of error.

Tests of the Standards

Five solid-opal-glass standards (A1 to A5)[2] and 5 of

* Research Paper RP 709, Journal of Research, U. S. Bureau of Standards, 13:281-291 (Sept., 1934).

[1] Bureau of Standards, Washington, D. C.

[2] The transparency of paper and tracing cloth, May, 17, 1917.

the flashed-opal standards (B1 to B5) were prepared in the form of rectangles 5 by 20 cm.; the thicknesses are about 1.5 mm. The standards were engraved with the identifying marks.

Uniformity

Since the five solid-opal-glass standards were cut from the same sheet it may be expected that thickness is the chief determinant of opacity. This does not apply, of course, to the standards of flashed-opal glass. Accordingly, an attempt was made to correlate opacity with thickness for the solid-opal-glass standards. Two measurements of contrast ratio were made on each of the 10 standards, one measurement applying chiefly to the engraved end, the other chiefly to the end not engraved. Table I. shows the results of this test.

TABLE I.—UNIFORMITY OF THE STANDARDS

Standard	Engraved end: Thickness, mm.	Engraved end: $C_{.97}$	End not engraved: Thickness, mm.	End not engraved: $C_{.97}$	Standard	Engraved end: Thickness, mm.	Engraved end: $C_{.97}$	End not engraved: Thickness, mm.	End not engraved: $C_{.97}$
A1	1.52	0.839	1.45	0.837	B1	....	0.477	....	0.490
A2	1.53	.834	1.44	.834	B2	....	.474	....	.467
A3	1.54	.834	1.45	.829	B3	....	.476	....	.471
A4	1.62	.842	1.51	.836	B4	....	.474	....	.478
A5	1.70	.846	1.60	.846	B5	....	.498	....	.508

These values of contrast ratio represent means of 10 settings each; the uncertainty is about 0.004. It may be seen that the variations in opacity from one end of the standards to another indicated by these measurements are scarcely, if at all, significant for the solid-opal-glass standards. The correlation with thickness is suggested but is somewhat masked by experimental error. The variation in opacity from one end to the other of two (B1 and B5) of the flashed-opal standards is significant. It is concluded that the thickness of the diffusing layer of these flashed-opal-glass standards is importantly inconstant and that on the contrary the thickness of the solid-opal-glass standards is not importantly inconstant.

Cleanableness of the Fine-Ground Surfaces

As stated before, one face of each standard was left fire-polished; this face is always toward the white backing and is not viewed by the photometer. The other face of each standard is fine-ground. Since there may be a difference between the surface obtained by fine-grinding clear glass and that obtained by fine-grinding opal glass, because of nonhomogeneity of the latter, the two surfaces were tested separately to determine the degree to which they may be cleaned.

The method of test was: (1) Wash thoroughly with soap and water by rubbing with the finger tips, and measure contrast ratio; (2) rub with lampblack and machine oil, wash with soap and water, and measure contrast ratio; (3) repeat process (1); (4) rub with lampblack and machine oil, wash with gasoline, wash with soap and water, and measure contrast ratio.

It was found that the fine-ground surface of clear glass was cleaned by washing with soap and water as far as visual inspection could distinguish; measurement of contrast ratio, however, revealed that an appreciable amount of lampblack remained. This residual amount was removed by washing both with gasoline and with soap and water.

Visual inspection of the fine-ground surface of opal glass showed that all the washings had failed to remove the lampblack completely, but measurement showed that the washings had succeeded in restoring the original value of contrast ratio. Since soiling with oil and lampblack is regarded as a rather severe test, no further attempt was made to find a more effective cleaning method.

[2] The use of solid-opal glass with fine-ground surfaces for standards of opacity was suggested to the Bureau by J. W. Forrest, of Bausch and Lomb Optical Co. in the summer of 1933.

Applicability of the Formula for Thin Samples to the Standards

The appreciable thickness (1.5 mm) of the standards might be sufficient to make formulas inapplicable which were derived on the assumption of no loss of light through the edges. Accordingly, measured contrast ratio, $C_{R'}$, was found for standards A2 and A3 using three different white backings, fresh magnesium carbonate ($R'=0.96$), old magnesium carbonate ($R'=0.92$) and cardboard ($R'=0.78$). These values of reflectance were found for nearly diffuse illumination and perpendicular viewing relative to magnesium oxide whose reflectance is taken as 0.97. *(4)* The reflectance of the solid-opal-glass standards backed by black velvet, R_0, was found in the same way to be 0.71. Measured contrast ratio was determined on the original model designed and used by Priest. *(1)* The color temperature of the illuminant for measurement of both reflectance and contrast ratio was about 2,400 K. Care was taken to insure that the white backings were within 0.2 mm of the standards over the entire effective area (4 cm diam.). Table II gives the values of $C_{R'}$ found in this way and values of $C_{.97}$ found from them by application of formula 1. This application consisted of two stages: First, ideal contrast ratio, C, was found from formula 1 in terms of the known quantities, $C_{R'}$, R_0, and R'; then true contrast ratio, $C_{.97}$, was found for these values of C by substituting $R'=0.97$ directly in the formula.

TABLE II.—MEASURED CONTRAST RATIO AND TRUE CONTRAST RATIO

R'	Standard A2: $C_{R'}$	Standard A2: $C_{.97}$	Standard A3: $C_{R'}$	Standard A3: $C_{.97}$
0.96	0.836	0.832	0.836	0.832
	.835	.831	.838	.834
	.830	.826	....	....
0.92	.856	.834	.851	.829
0.78	.899	.832	.903	.836
	.900	.833	....	....

Since each ratio is uncertain by about 0.004, the differences are not significant, and it may be concluded that the formula for thin samples applies to the solid-opal-glass standards within the experimental uncertainty. For much smaller effective areas, however, the amount of light lost through the edges might be appreciable; each particular condition of illuminating and viewing requires separate study.

A similar test of the flashed-opal-glass standards showed formula 1 to be inapplicable by amounts exceeding 0.01 over the same range in reflectance, R', of backing. Such a result might have been expected because of the greater loss of light through the clear-glass edges between the flashed-opal back layer and the fine-ground front surface. A satisfactory treatment of these standards was obtained by the assumption that the two scattering layers separated by 1.5 mm would behave essentially like a single scattering layer located 0.5 mm way from the white backing. This latter case is handled by a previously derived approximate formula *(8)* extended so as to take account of absorption of light by the sample.

Permanence

Since these standards have been made up only for a few months, no very conclusive evidence as to the constancy of their opacity is at hand. In 3 months none of the standards has shown any unexplained variations. While glass undergoes some alteration in surface character with time, there seems to be little basis for expecting a significant change in opacity of these standards. Periodic checks are planned as a test of this presumption.

Application of the Standards

Because of several advantages possessed by the solid-

opal-glass standards, it is planned for the present to use them to the exclusion of the flashed-opal type. They are more suitable because (1) they are more uniform, (2) their opacity depends less on soiling, (3) the formula for thin samples may be used, (4) their opacities are close to those of the writing and printing papers chiefly tested, and (5) they introduce less chromaticity difference between the two halves of the photometric field.

The general plan of using the opal-glass standards is to issue one of them to the owner of an opacimeter together with values of reflectance for black backing, R_0, and of ideal contrast ratio, C. The recipient measures the standard on his opacimeter and obtains $C_{R'}$. This determines R' for the opacimeter under test according to the relation:

$$R' = \frac{C_{R'}(1-C)+R_0(C-C_{R'})}{C(1-C_{R'})} \qquad (4)$$

which follows from formula 1.

If this value of reflectance of the surface or cavity in contact with the back of the sample conforms to the desired definition of opacity, the instrument is reading correctly. This value is 0.97 if true contrast ratio is being used; it is about 0.89, as will appear later, for the TAPPI definition of opacity. If the desired value of R' is not obtained either the operator may adjust the reflectance by suitable means until it reads correctly or he may compute opacity by formula 1 as discussed presently.

Dependence on Position of the Sample

As just outlined, the use of the standards of opacity may be regarded as an indirect way of determining the reflectance of the surface or cavity in contact with the back surface of the standard. If the sample to be measured is placed so that its back surface occupies the plane previously occupied by the back surface of the standard, the method of calibration described gives the correct value of opacity. In some instruments, however, it is inconvenient to insert samples of varying thickness so that the back surfaces always lie in the same plane. This is the case with the present Bureau of Standards type of instrument; it is a minor defect of design. For these instruments account must be taken of the fact that the standards fill the slot which is only partially filled by the sample holder and thin sample; the result is that the back plane of the sample is 0.5 to 0.7 mm. further from the white backing than the back plane of the standard.

In this case the reflectance of the cavity commencing approximately at the central plane of the standard instead of the back plane must be deduced from the opacity measurement of the standard. This is done by application of the approximate formula previously derived for the dependence of $C_{R'}$ on separation from the white backing *(8)* extended so as to take account of light absorption by the sample. It is found, and checked by experiment, that for this purpose the standard has to be assigned a value lower than the ideal contrast ratio by about 0.02. The remainder of the calibration, whether by adjustment of the instrument or by use of formula 1 is carried out as before. The calibration, however, is somewhat less certain because the position of the sample is imperfectly controlled.

Dependence on Light-Absorption by the Sample

In case it is not possible to adjust the value of R' (by substitution of a new white backing or by adjustment of the separation from the sample), or if it is preferred for other reasons to use formula 1 for computation of opacity, an approximate value of reflectance, R_0, is needed. This value may be estimated with sufficient accuracy for many samples of small light absorption by taking account of the known dependence of R_0 on thickness.

In the previous paper *(3)* it was assumed that formulas derived for nonabsorbing samples would apply to white paper and a good check was obtained for the samples tested which had $C_{.97}$ less than 0.75. By this assumption the sample in a thick layer would have unit reflectance, and since many kinds of papers have reflectivities of about 0.80, the assumption leads to appreciable error for samples of high opacity though the error is small for samples of lower opacity. A more accurate representation of actual samples regardless of opacity is obtained by taking $R_\infty = 0.80$. Table III shows corrections to be subtracted from instrument readings, $C_{R'}$, in order to obtain true contrast ratio, $C_{.97}$, for samples having reflectivities (R_∞) equal to 0.80.

TABLE III.—CORRECTIONS TO BE SUBTRACTED FROM INSTRUMENT READINGS, $C_{R'}$, TO GIVE TRUE CONTRAST RATIO, $C_{.97}$, FOR THIN SAMPLES OF A MATERIAL HAVING A REFLECTIVITY (R_∞) EQUAL TO 0.80

($C_{R'} - C_{.97}$)

$C_{R'}$	R' = 0.76	R' = 0.78	R' = 0.80	R' = 0.82	R' = 0.84	R' = 0.86	R' = 0.88	R' = 0.90	R' = 0.92	R' = 0.94	R' = 0.96	$C_{R'}$
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00
.05	.010	.009	.008	.007	.006	.005	.004	.004	.003	.002	.001	.05
.10	.020	.019	.017	.015	.013	.011	.009	.007	.005	.003	.001	.10
.15	.030	.028	.025	.022	.019	.016	.013	.010	.008	.005	.002	.15
.20	.040	.037	.035	.029	.025	.021	.018	.014	.010	.006	.002	.20
.25	.050	.046	.041	.036	.031	.026	.022	.017	.012	.007	.002	.25
.30	.059	.054	.048	.043	.037	.032	.026	.020	.015	.009	.003	.30
.35	.068	.062	.056	.049	.043	.036	.030	.023	.017	.010	.004	.35
.40	.076	.069	.062	.055	.048	.041	.034	.026	.019	.012	.004	.40
.45	.083	.076	.068	.060	.053	.045	.037	.029	.021	.013	.004	.45
.50	.090	.082	.074	.065	.057	.049	.040	.032	.023	.014	.005	.50
.55	.096	.087	.078	.070	.061	.052	.043	.034	.024	.015	.005	.55
.60	.100	.091	.082	.073	.064	.055	.045	.035	.025	.016	.005	.60
.65	.103	.094	.085	.076	.066	.056	.047	.037	.026	.016	.005	.65
.70	.105	.096	.086	.076	.067	.057	.047	.037	.027	0.16	.005	.70
.75	.103	.094	.085	.075	.066	.056	.046	.036	.026	.016	.005	.75
.80	.099	.090	.081	.072	.062	.053	.044	.034	.024	.015	.005	.80
.85	.090	.081	.073	.064	.056	.047	.039	.030	.022	.013	.004	.85
.90	.074	.067	.059	.052	.045	.038	.031	.024	.017	.010	.004	.90
.95	.047	.041	.037	.032	.028	.023	0.19	.014	.010	.006	.002	.95
1.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.00

The values in Table III were obtained by application of formulas 1 and 2. First, for various values of sx the corresponding values of R_0 and R_1 were computed from formula 2. Second, these values of R_0 were plotted against the ratio, R_0/R_1, which is ideal contrast ratio, C, and a smooth curve drawn through the points (see fig. 1, lower curve). Third, for enough values of C to determine the relation, $C_{R'}$ was computed by formula 1, the value of R_0 corresponding to each value of C being read from the curve (see fig. 1); this was done for R' equal to 0.97, and for R' equal to 0.96, 0.94, 0.92, . . . 0.76. Fourth, the differences $C_{R'}-C_{.97}$ were computed, and the corrections given in Table III obtained by graphical interpolation.

These corrections apply strictly to thin, homogeneous samples of material having a reflectivity (R_∞) of 0.80. In order to determine how accurately these corrections apply to actual samples, 13 papers were selected and R_0 and $C_{.96}$ measured for them. From these results values of ideal contrast ratio, C, were computed by formula 1. These values are plotted in fig. 1 (circles). Figure 1 also shows the straight line, $R_0 = C$, which refers to nonabsorbing samples ($R_\infty = 1$). It is seen that the points representing actual paper samples fall about as much on one side of the curve for $R_\infty = 0.80$ as on the other. For samples on or near the curve, the corrections of Table III apply exactly; for those which fall far from it the corrections apply less exactly.

Table IV shows values of R_0 and $C_{.96}$, obtained by measurement, and computed values of ideal contrast ratio, C, true contrast ratio, $C_{.97}$, and TAPPI opacity computed as $C_{.89}$. The differences, $C_{.89}-C_{.97}$, are also compared with the corrections read by interpolation from Table III.

The final column gives the difference between $C_{.89}$—$C_{.97}$ and the corresponding correction read from Table III; it is seen that, as expected, the corrections are appreciably in error both for papers of very light color (100 per cent rag bond) and for dark papers (newsprint), but they apply well to papers of intermediate lightness.

It may also be noted that the corrections of Table III apply well to the solid-opal-glass standards (see point indicated by square in fig. 1).

Opacity According to the TAPPI Definition

The definition of opacity for paper adopted by the Technical Association of the Pulp and Paper Industry *(2)* was intended to be equivalent to true contrast ratio, $C_{.97}$. However, the importance of the separation between sample and white backing was not well understood. As a result the method gives $C_{R'}$, where R' is somewhat lower than 0.97 because of interposition of a cover glass and is somewhat undefined because the reflectance of magnesium carbonate used as the white backing is not always the same and because the amount of separation is not stated. Much of the undesirable effect of this uncertainty in practice has been avoided by having many of the opacimeters compared with the instrument at the National Bureau of Standards.

Opacity by the TAPPI method, therefore, is determined by the adjustment of this particular instrument rather than by definition. Although this adjustment may not have been absolutely constant over a period of years, still there is some interest in determining the value of R' which characterizes the Bureau of Standards opacimeter because that value is probably the most reliable determinant of TAPPI opacity that can be obtained.

Accordingly two of the standards, A4 and B4, and three paper samples, j, k, l, of known reflectance, R_0, and ideal contrast ratio, C, were measured on the Bureau of Standards instrument. It was found by the method described in the preceding section that the reflectance, R', of the cavity commencing at the back of the standards is 0.92, while that of the cavity, deeper by about 0.6 mm, commencing at the back of the thinner paper samples is about 0.89. The corrections for $R'=0.89$ obtained by interpolation from Table III indicate the difference between TAPPI opacity and true contrast ratio for samples made of material having a reflectance of 0.80 in a thick layer; the difference rises as high as 0.40 for some samples. Examples of this difference for actual samples are given in Table IV as $C_{.89}$—$C_{.97}$.

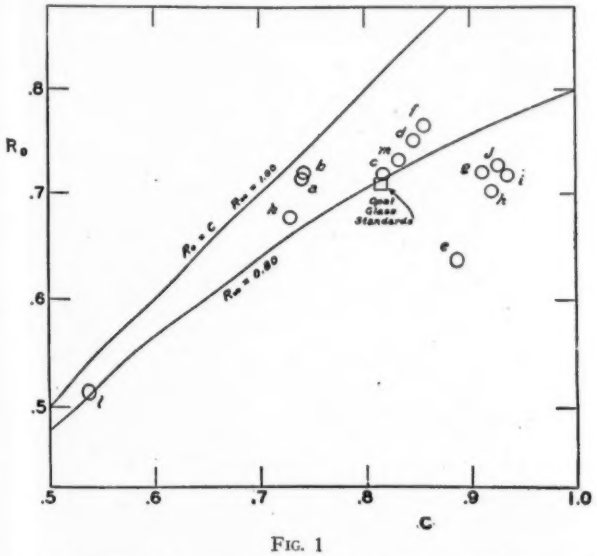

FIG. 1

Relation between ideal contrast ratio, C and reflectance with black backing R_0. The stright line, $R_0 = C$, refers to nonabsorbing samples ($R_\infty = 1.00$); the curve refers to samples made of various thicknesses of a material whose reflectivity (R_∞) is 0.80. The circles refer to paper samples identified in Table IV.

If a standard is to be used to check an opacimeter according to the TAPPI definition, an abridgement of the method of checking described in the previous section is possible. Instead of giving values of R_0 and C for the standard it suffices to give $C_{.92}$. The instrument is adjusted so as to give this value of opacity for the standard; then the sample holder is adjusted so as to place the paper samples 0.6 mm further from the white backing than the back of the opal-glass standard inserted without the holder. The instrument is then adjusted to give $C_{.89}$ for paper samples inserted in the holder provided the photometer is in adjustment.

TABLE IV.—IDEAL CONTRAST RATIO C, TRUE CONTRAST RATIO $C_{.97}$, AND APPROXIMATE TAPPI OPACITY, $C_{.89}$, FOR REPRESENTATIVE PAPER SAMPLES SHOWING APPLICABILITY OF THE CORRECTIONS GIVEN IN TABLE III.

Sample	Type of paper	R_0	$C_{.89}$	C	$C_{.97}$	$C_{.89}$	$C_{.89}$—$C_{.97}$	Corrections read from table 3 $R'=.89$	Error in the correction
a	100 per cent rag bond	0.715	0.765	0.740	0.759	0.803	0.044	0.039	+0.005
b	.... do	.721	.768	.742	.761	.806	.045	.038	+.007
c	Book, no filler.	.720	.837	.817	.832	.866	.034	.033	+.001
d	Book, clay filler	.753	.865	.846	.861	.892	.031	.028	+.003
e	News print....	.637	.897	.887	.895	.913	.018	.025	—.007
f	Book, clay filler	.767	.875	.856	.870	.901	.031	.028	+.003
g	.... do	.722	.922	.911	.919	.936	.017	.021	—.004
h	.... do	.703	.929	.920		.942	.015	.018	—.003
i	.... do	.719	.943	.935		.954	.013	.016	—.003
j	.... do	.729	.935	.926	.933	.948	.015	.017	—.002
k	Sulphite bond..	.676	.752	.729	.747	.788	.041	.039	+.002
l	Manifold	.513	.558	.538	.553	.593	.040	.040	±.000
m	Mimeograph ..	.734	.851	.832	.847	.879	.032	.030	+.002

An abridged method of obtaining a calibration of the instrument for paper samples represented closely by the curve of Fig. 1 is also possible, provided the difference, $\Delta C_{.92}$, between the true value of $C_{.92}$ for the standard and opacity given for it by the instrument is not too great (perhaps less than 0.03). This difference, $\Delta C_{.92}$, is a measure of how much the reflectance of the cavity departs from 0.92. To a first approximation the reflectance of the deeper cavity (deeper by 0.6 mm) commencing at the back of the paper sample will depart from 0.89 by the same amount, and the opacimeter will give a result correspondingly in error, say by $\Delta C_{.89}$. By application of formulas 1 and 2 as described in connection with Table III, the relation of $\Delta C_{.92}$ and $\Delta C_{.89}$ can be determined so that the corrections, $\Delta C_{.89}$, to be applied to readings on paper samples may be found directly from the correction for the standard, $\Delta C_{.92}$, without the need for computing R' explicitly. Table V gives the ratio, $\Delta C_{.89}/\Delta C_{.92}$, as a function of opacity $C_{R'}$, given by the instrument assuming that the standard has $C_{.92}=0.85$, which is nearly true for the solid-opal-glass

TABLE V.—RELATION BETWEEN THE CORRECTIONS FOR PAPER SAMPLES, $\Delta C_{.89}$, AND THE CORRECTION FOR THE STANDARD, $\Delta C_{.92}$.

[These values are for papers having reflectivities (R_∞) of about 0.80]

Measured value of opacity $C_{R'}$	Ratio of error for a paper sample to error for the standard $\Delta C_{.89}/\Delta C_{.92}$	Measured value of opacity $C_{R'}$	Ratio of error for a paper sample to error for the standard $\Delta C_{.89}/\Delta C_{.92}$
0.00	0.0	0.50	1.0
.05	.1	.55	1.1
.10	.2	.60	1.2
.15	.3	.65	1.2
.20	.4	.70	1.2
.25	.5$_5$	.75	1.2
.30	.7	.80	1.1$_5$
.35	.7$_5$	.85	1.0
.40	.8$_5$	.90	.8
.45	.9	.95	.5
		1.00	0

standards. These ratios may also be found from Table III by taking the appropriate differences[8].

The use of these ratios to find $C_{.89}$ for a paper sample is illustrated by the following example:

True value for $C_{.89}$ for the standard	0.854
Opacity of standard measured by instrument	.870
Instrument reads high by $\Delta C_{.89}$ equal to	.016
Opacity of a book paper by instrument, C_R'	.925
Ratio from table 5 for $C_R' = 0.925$	0.7
Correction, 0.016 x 0.7	.011
$C_{.89}$ for the book paper	.914

[8] Detailed instructions for checking opacimeters of the type described in Bureau of Standards Circular C63 according to this method are given in NBS Letter Circular LC418, Standards for Checking Opacity Meters.

Literature Cited

(1) Specification of the Transparency of Tracing Cloth, Circular of the Bureau of Standards C—63 (May 17, 1917).
(2) TAPPI Standard T 425 m, Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York, N. Y.
(3) Judd, D. B., Sources of Error in Measuring Opacity of Paper by the Contrast-Ratio Method, B. S. J. Research, 12:345 (R. P. 660) (1934).
(4) International Critical Tables, 5:262.
(5) Channon, H. J., Renwick, F. F., and Storr, B. V., The Behavior of Scattering Media in Fully Diffused Light, Proc. Roy. Soc. London, (A) 94:222, (1918). See their equation 2.
(6) Stokes, G. G., On the Intensity of Light Reflected from or Transmitted Through a Pile of Plates, Proc. Roy Soc. London, 11:545 (1960-1962). See his equation 6.
(7) Kubelka, P. and Munk, F., Ein Beitrag zur Optik der Farbaustriche, Z. f. Techn. Phys. 12:593 (1931). See their equation 8.
(8) See equation 5 in (3) above.

Sizing Symposium for TAPPI Meeting

When the Technical Association of the Pulp and Paper Industry meets at the Waldorf-Astoria in New York on February 18 to 21, it will bring together the leading authorities on the subject of paper sizing. This topic which has received the attention of paper makers for generations is justified on the TAPPI program because of the new knowledge that has been dug up by research men during the past year or two.

The symposium will be conducted by Dr. Helmuth C. Schwalbe of Dill & Collins, Inc., chairman of the Technical Association Committee on the Preparation of Non-Fibrous Materials. Following are the papers to be presented:

1. "Our Present Knowledge of Rosin," by E. A. Georgi of the Hercules Powder Company Experimental Station, Wilmington, Delaware.

The history of rosin manufacture in the United States will be traced from 1600 to the present day. Various methods of manufacture will be discussed and the types of rosin which these methods produce will be considered. The properties of rosin including viscosity, density and thermal constants will be taken up. Brief mention will be made of chemical properties and methods of analysis. The differences which are known to exist between various grades and classes of rosin will be pointed out, as well as problems encountered both in the manufacture and use of rosin.

2. "Physical and Chemical Properties of Aluminum Sulphate Compounds," by Dr. A. W. Thomas of Columbia University Chemistry Department.
3. "What I do not Know About Sizing and Capillary Flow," by Miss R. M. Cobb of the Lowe Paper Company, Ridgefield, N. J.
4. "Physico-Chemical Principles in the Cooking of Rosin Size," by A. C. Dreshfield of the Paper Makers Chemical Corporation, Kalamazoo, Mich.
5. "Observations in the Cooking of Size and the Losses in Size Making," by M. A. Krimmel, Hammermill Paper Company, Erie, Pa.
6. "New Developments in Cooked Sizes and Their Emulsification," by J. A. De Cew, president of Process Engineers Inc., Mt. Vernon, N. Y.
7. "The Fundamentals of the Bewoid Process," by Dr. Bruno Wieger, Bayreuth, Germany.
8. "Physico-Chemical Principles of the Bennett Process," by Dr. O. F. Neitzke, technical director of Bennett Inc., Cambridge, Mass. This paper will point out recent developments in the use of amorphous waxes.
9. "Chemistry of the Delthirna Process" (speaker to be announced.)
10. "Raw Materials Specifications," by C. E. Peterson, Riegel Paper Corporation, Riegelsville, N. J.

Sizing and Capillary Flow

Miss R. M. Cobb, director of research of the Lowe Paper Company, Ridgefield, N. J. will read a paper at the annual meeting of the Technical Association of the Pulp and Paper Industry, February 18-21, 1935 on "What I do not know about Sizing and Capillary Flow."

It has not been generally recognized that an accurate knowledge of the tension in the liquid-paper interface is a first condition for understanding the penetration of liquids into paper and for understanding sizing, which is the resistance to such liquid penertation. As Ferguson points out, methods for the determination of these tensions are barely emerging from a primitive stage of development, hence our previous reluctance to center sizing theory about them.

This paper will attempt to discuss briefly some of these vital but unknown quantities in sizing:

Contact angles and the laws governing penetration and swelling by liquids.

Physical state and position of the rosin or wax size content of papers.

Effect of and reason for internal sizing.

Effect and reason for surface sizing.

Basis of grease resistance.

Basis of moisture resistance.

Basis of, and test method for ink resistance.

This paper will be presented as a feature of the Sizing Symposium on February 19 now being prepared by the TAPPI Committee on the Preparation of Non-Fibrous Materials. This committee is composed of the following: H. C. Schwalbe, Dill & Collins Inc., Chairman; C. M. Connor, Glassine Paper Company; W. E. Byron Baker, Castanea Paper Company; R. M. Cobb, Lowe Paper Company; W. H. Harding, American Cyanamid and Chemical Corporation; R. E. Harter, Staley Sales Corporation; W. Hirschkind, Great Western Electrochemical Company; H. R. Myers, Hungerford & Terry; C. H. Nystrom, Northern Paper Mills; C. L. Reece, Whiting Paper Company; C. W. Richards, Oxford Paper Company. This committee is part of the TAPPI Operating Division of which F. C. Clark, Skinner & Sherman Inc., is general chairman.

Lake States TAPPI To Meet

The next meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry will be held at the Conway Hotel, Appleton, Wisconsin, Tuesday, January 8, 1935 at 6:30 p. m.

P. C. Day, chief engineer of the Talk Corporation, Milwaukee, Wis. will talk on "Gears in the Paper Industry."

R. M. Radsch of the Appleton Machine Company, Appleton, Wis., will discuss "The Vortex Beater."

Crane Joins TAPPI

The Crane Company one of the largest manufacturers of piping, fittings and plumbing supplies has become a member of the Technical Association of the Pulp and Paper Industry.

M. W. Link who is in charge of industrial sales for Crane will represent the company in the association.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Alkaline Processes

Production of Cellulose. Henry Dreyfus. Brit. pat. 407,018 (Feb. 27, 1934).—Ligno-cellulosic materials, *e.g.*, wood, esparto, grasses and wood pulps from which the lignins have already been partly removed by the customary commercial processes, *e.g.*, the sulphite, soda or sulphate process, are treated with alkali, especially dilute alkali, at high temperatures (substantially) to remove the lignins, and are then heated with an acid liquor containing sulphur dioxide in the free state and (or) in the form of a bisulphite. Among examples wood chips are treated with 2 to 3% caustic soda at 140° to 150°C. until the lignins are substantially removed, after which sulphur dioxide is blown in and cooking continued at 100° to 120°C. and 4 to 6 atmospheres.—A.P.-C.

Continuous Process for the Manufacture of Chemical Pulp. Giulio Consiglio. Chemie & Industrie Special No. 797-813 (April, 1934).—A detailed description of the Pomilio chlorine-gas process, as modified for continuous operation, of the equipment required, of its performance in commercial operation and of the characteristics of the pulps produced.—A.P.-C.

Investigations on Increasing Yields in the Manufacture of of Soda Pulp. G. Dupont and J. de Fayard. Chimie & Industrie Special No.: 784-787 (April, 1934).—By suitable addition of calicum oxysulphide to soda and sulphate cooking liquors the yeild of pulp was increased up to 80% on the dry weight of the wood; the cooked chips require a rather prolonged mechanical treatment but yield pulps of excellent strength through somewhat dark color. Increasing the proportion of oxysulphide in the liquor facilitates the mechanical treatment and decreases the yield. Calcium oxypolysulphide seems to act quite differently from the oxymonosulphide and apparently produces a kind of vulcanization of the lignin followed by destruction of the cellulose by oxidation in the air. Cooking with sodium carbonate followed by cooking with a mixture of slaked lime and sulphur also gave high yields, but the pulp was harder to mill. Cooking with a mixture of caustic soda and sulphur showed that the presence of sulphur retards pulping but increases the yield. Preliminary treatment with calcium chloride, followed by cooking with a mixture of caustic soda and sulphur showed that the calcium chloride had no appreciable effect other than a slowing of the subsequent cooking.—A.P.-C.

Manufacture of Pulp. Clinton K. Textor assignor to The Northwest Paper Co. U. S. pat. 1,970,258, (Aug. 14, 1934).—Wood is cooked in a liquor containing mainly sodium sulphite together with enough sodium carbonate to give a pH of about 7.5 to 9.5. In recovering the liquor, alkali (preferably in the form of soda black liquor) is added before evaporation to prevent separation of solids and formation of scale in the evaporator.—A.P.-C.

Production of Pulp, Etc. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pat. 1,973,557, (Sept. 11, 1934).—Wood is cooked in a liquor containing sodium monosulphite as its principal active agent, together with smaller amounts of sodium carbonate and sodium bicarbonate, and the gases formed during the cook are relieved from the digester. The spent liquor is regenerated by concentrating, carbonizing or smelting the solids, dissolving the smelt in water and sulphiting the solution so as to convert most of the sodium salts into sodium monosulphite and leave a small proportion as sodium carbonate and bicarbonate.—A.P.-C.

Process for the Continuous Treatment of Vegetable Materials with Soda and Gaseous Chlorine for the Industrial Production of Cellulose. Umberto Pomilio assignor to Alessandro Pomilio. U. S. pat. 1,970,148, (Aug. 14, 1934).—The invention provides a modification which renders the Cataldi-Pomilio chlorine-gas pulping process continuous. The treatment is carried out in a vertical tower lined with material that is resistant to hot dilute alkali and to moist chlorine gas. The tower is of such a height that the reaction is completed in the time required for the pulp to pass downward through the tower. Means are provided at suitable levels to introduce alkaline liquor, steam and chlorine gas into the tower.—A.P.-C.

Pulp for the Manufacture of Viscose. George A. Richter assignor to The Brown Co. Can. pat. 341,091, (April 24, 1934).—Pulp containing pentosans is admixed with a heated caustic solution containing hypochlorite bleach and of at least about 15% strength. After the bleach has been largely consumed, the mixture is cooled to at least about room temperature and so maintained for the desired period of time to maximize the mercerizing activity of the liquor and its solubilizing action on the pentosans. The pulp is washed and exhibits an alpha-cellulose content of at least about 94% and a pentosan content not exceeding 1.5%. When insufficiently white, the pulp may be post-bleached.—A.P.-C.

Waste Heat Recovery Apparatus. Adolph W. Waern and Leo F. Bunde assignors to Nekoosa-Edwards Paper Company. U. S. pat. 1,971,358, (Aug. 28, 1934).—In a black liquor recovery system, the connection between the rotary furnace and the stationary smelting furnace is in the form of a heat exchanger, which is fed by water from a waste-heat boiler and the heated water (or steam) is returned to the boiler.—A.P.-C.

Investigations on Improving Economical Pulping by the Soda and Sulphate Processes. G. Dupont and J. de Fayard. Bull. Inst. Pin No. 51-52:66-69 (March-April, 1934).—Promising results have been obtained in tests utilizing black liquors from the cooking of wood for cooking pecto-cellulosic materials (straws and grasses).—A.P.-C.

Sulphite Process

Burning of Carbonaceous Pyrites at the Kamenskii Pulp Mill. P. S. Larin, K. V. Khodakov, N. L. Temesheva and V. O. Levinskii. Materialui Vsesoyuz Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 2:55-65; C. A. 28:5663.—A more effective ventilation system is recommended for the complete oxidation of sul-

phur and organic matter and elimination of the clogging of flues with subliming sulphur.—C. J. W.

Heat Losses in the Blow-Off in Sulphite Cooking. O. K. Giller, Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui (Central Sci. Research Inst. Paper Ind. Trans.) 1933, No. 3:5-9.—C. J. W.

Theory and Practice of Sulphur Dioxide Absorption in the Mitscherlich Tower. S. A. Fotiev. Tzentral. Nauch.-Issledovatel Inst. Bumazhnoi Prom. Materialui (Central Sci. Research Inst. Paper Ind. Trans.) 1933, No. 4:19-33.—C. J. W.

The Influence of Acid Strength and Temperature on Penetration and Other Phenomena in the Early Stages of Pulping. M. F. Martuinov. Tzentral. Nauch.-Issledovatel Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:54-66; C. A. 28:6304.—The initial results of the experimental work led to the following tentative conclusions: An increase of acidity from 3 to 6 per cent sulphur dioxide results in better saturation of the wood chips and activation of the chemical process of pulping. The effects are greater if the temperature is raised during the penetration period from 105 to 120° than if the acidity is increased and the time of cooking can be decreased without increasing the screenings. At the end of the penetration period the ash content of the chips decreases toward the center.—C. J. W.

Problems of Recovery (of Sulphur Dioxide in Sulphite Pulping.) N. N. Nepenin and P. V. Khviyuzov. Tzentral Nauch.-Isselovatel. Inst. Bumazhnoi Prom. Materialui (Trans. Central Sci. Research Inst. Paper Ind.) 1933, No. 2:3-26; C. A. 28:6305.—The experimental study was begun with the determination of the composition and thermal effects of blow-off gases and condensate. The gaseous products are sulphur dioxide, carbon dioxide and nitrogen, with no hydrogen, carbon monoxide or hydrocarbons. The gases contain nitrogen until the end of the cooking; hence the expulsion of air from wood proceeds during the entire cooking process. The amount of carbon dioxide increases with the temperature, comprising 1.43 per cent of the decomposed part of the wood. Sulphur dioxide is the chief constituent of the gases, the amount of which depends upon the strength of the cooking acid. The blow-off liquid contains an insignificant amount of a real condensate, the heat of which is lost. The quantity of heat carried over by the gases during all discharges is insignificant (if the heat of splashed-over liquor is discounted) and for autoclave cooking is 0.5 per cent of the heat escaping with all blow-offs. The acid penetration of wood chips with calcium base at ordinary temperature proceeds faster with free than with combined sulphurous acid. The absorption of free sulphurous acid proceeds mainly at the initial stage of cooking and is retarded or entirely stopped toward the end. The consumption of sulphur per unit of dissolved part of wood decreases with the concentration of sulphurous acid in the cooking acid.—C. J. W.

Composition of Blow-Off Gases of Sulphite Pulp Production. K. V. Khodakov and G. A. Kalistratov. Bumazhnaya Prom. 13, No. 5:17-25 (1934); C. A. 28:6305.—The results of independent work substantiated those of Nepenin and Khviyuzov (cf. preceding abstract).—C. J. W.

Standardization of Sulphite Cooking. N. I. Trukhov. Materialui Vsesoyuz Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 3:54-62; C. A. 28:5663.—The current problems of improvement and standardization of sulphite pulping proposed at the second conference of the Institute are enumerated and discussed.—C. J. W.

Russian Experiments with Quick Cooks of Sulphite Pulp. A. Krüger. Finnish Paper and Timber J. 16, No. 15:660, 662-664 (Aug. 15, 1934).—A review of Russian experiments for shortening the sulphite cooking process as carried out in the Russian mills at Sjas and Sokol and described in the Russian literature by Kogan, Fotiev, Giller and Chodakoff. Sulphur consumption increased and yield of cellulose decreased. The results are tabulated.—C. J. W.

Theory of Absorption Applied to the Sulphite Tower. W. L. Beuschlein and Frank H. Conrad. Paper Trade J. 99, No. 12; 75-78 (Sept. 20, 1934).—The film theory is applied to the sulphite tower for the determination of the overall resistance to absorption. A method is given for indicating the effect of tower operating characteristics. Some pressure-composition curves are presented for the system CaO-SO_2-H_2O for 15° and 25°C.—A. P.-C.

Factors Which Affect the Yield of Sulphite Pulp. G. J. C. Potter and F. H. Yorston. Pulp Paper Can. 35; 526-529 (Sept., 1934).—A survey of recent literature with bibliography of 19 references.—A. P.-C.

Aeration of Sulphite Liquor. M. J. O'Dell and A. Z. Greenlaw. Paper Trade J. 99, No. 8; 41-42 (Aug. 23, 1934).—Under properly controlled conditions, ponding and aeration will greatly reduce the biochemical oxygen demand of a sulphite waste liquor, resulting in a decrease in the demand of this waste for the oxygen in the stream and thereby eliminating part of its pollutional effects.—A. P.-C.

Variables Encountered in Sulphite Mill Operation Using Sap Peeled As Against Drum Barked Wood. J. B. Jones. Pulp Paper Can. 35; 472-474 (Aug., 1934).—The essential difference between sap peeled and drum barked woods, from the standpoint of sulphite mill operation, lies in the higher moisture content of the latter. Observations of the effect of variations in moisture content on the amount of wood and acid charged in the digester, pulp yield per digester, amount of screenings, composition of the cooking acid, sulphur, limestone and steam consumptions, and quality of pulp, as noted in commercial operations at the mill of Ontario Paper Co., are given and discussed.—A. P.-C.

Chemical Pulping Process. George A. Richter assignor to Brown Co. U. S. pat. 1,974,751 (Sept. 25, 1934). Wood is impregnated with an alkaline liquor, the alkalinity of which is furnished at least in part by sodium sulphide. After removal of the impregnating liquor, the chips are cooked with a sodium sulphite liquor. The spent liquor is evaporated, incinerated and smelted; the smelt is dissolved in water; the sodium carbonate is partially or completely separated from the sodium sulphide by fractional crystallization; the sodium sulphide solution is used for impregnating a fresh batch of chips and the sodium carbonate is sulphited to produce a sodium sulphite cooking liquor.—A. P.-C.

Process of Manufacturing Sulphite Pulp. Ernst Hochberger assignor to Canadian International Paper Co. U. S. Pat. 1,971,564 (Aug. 28, 1934)—In a two-stage sulphite pulping process wood chips are cooked in a liquor in which substantially 50% of the total sulphur dioxide is in the combined form; the liquor is removed without substantially lowering the temperature or pressure in the digester, and the chips are then cooked with water at a temperature of 160° to 170°C. to liberate the fiber and hydrolize the sulphonated lignin.—A. P.-C.

Digesting Process and Apparatus. Thomas L. Dun-

bar. U. S. pat. 1,974,420 (Sept. 25, 1934).—The invention provides for circulating the cooking liquor for up to two hours (after filling the digester) from the digester to the acid storage tank and back to the digester, before starting the cooking operation.—A. P.-C.

Production of Sulphite Pulp. Peter A. Paulson. U. S. pat. 1,969,421 (Aug. 7, 1934).—A common relief line is provided for all the digesters and is provided with an automatic pressure control device whereby a uniform pressure is always maintained in the line. Means are provided for supplying each digester a uniform predetermined flow of steam during the first stage of the cook until the desired temperature is reached, and thereafter supplying a smaller uniform predetermined flow of steam sufficient to maintain the desired temperature.—A. P.-C.

The Sulphite Cooking Process According to Haglund. Wochbl Papierfabr. 65, No. 30; 531 (July 28, 1934).—A short description of the process which is carried out in two stages, in the first stage the chips are cooked in an ordinary digester with a solution of sulphite or bisulphite which contains no excess of sulphurous acid. In this stage the lignin is attacked without breaking up the wood chip. After this treatment the excess liquor is drawn off and a sufficient quantity of sulphurous acid to decompose the wood is added and the cooking continued. In this manner the fibers are leniently treated so that a better yield is obtained with a better quality. Other advantages are, the use of pine wood and the recovery and regeneration of the cooking liquor and organic by-products.—J. F. O.

The Exchange of Cations with Strong Sulphite Pulp. Zellstoff u. Papier 13, No. 12; 558-60 (Dec., 1933); 14 No. 1; 17-18 (Jan., 1934).—After explaining the ability of strong sulphite pulp to exchange cations, the author discusses the azidoid character of sulphite pulp, the various acid groups, the law of ion equilibrium, comparison between various cations, ash content, drying ability and coloring, other influences of the ion condition, pH determination of the pulp, the neutralization curve, the quantity relation of the acid groups and in conclusion methods for the determination of the degree of cooking—J.F.O.

The Quality of the Stock from a Sulphite Cook. E. Richter. Zellstoff u. Papier 13, No. 12; 560-63 (Dec., 1933).—The factors bearing on the quality of the pulp are first discussed, then the influence of the human element, acid variations and its influence on the quality of the stock, influence of relief acids from the digester, the influence of the wood and the influence of the cooking time.—J. F. O.

Concerning Ligno-Sulphonic Acid and the Chemical Mechanism of the Sulphite Cooking Process. Erik Hagglund. Zellstoff u. Papier, 13, No. 6; 261-65 (June, 1933).—A thorough discussion of the many reactions with lignin occurring during the sulphite cooking process. The dissolving out of the lignin sulphonic acid from the solid phase is regulated by the hydrogen ion concentration in the solid lignin sulphonic acid and this should be considered as an hydrolytic reaction. The property of sulphite waste liquor to loosely combine with sulphurous acid is due mainly to the kinds of sugars in the liquor. The lignosulphonic acid, the insoluble in the solid phase as well as that in solution, formed during the sulphite cooking process possesses various contents of sulphur and methoxyl, according to the method of cooking.—J. F. O.

The Circulation of Liquor in the Cooking of Sulphite Pulp. Torsten Samson. Zellstoff u. Papier, 13, No. 5; 207-213; No. 6; 265-68 (May, June, 1933).—By means of numerous diagrams, curves and equations, the author first gives a very thorough explanation of the kinetics of the sulphite cooking process, making comparisons between the direct and indirect cook. The spraying of the cooking liquor on the top of the contents of the digester does not cause a quicker rise in pressure since there is always equilibrium between the gas and the liquid. It is not always an advantage to have a high sulphur dioxide content; in the beginning of the cook when sulphonation takes place it is an advantage but near the end of the cook excess sulphur dioxide consumes more calcium oxide which is detrimental to the quality of the pulp.—J. F. O.

Sulphite Waste Liquors

Production of Ultramarine from Spent Sulphite Liquors. M. P. Resh, A. V. Itzkovich and V. F. Osmul'ski. Materialui Vsesoyuz. Nauch.-Issledovatel. Inst. Bumazh. Tzellyuloz. Prom. (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 4:133-138; C. A. 28:5663.—Promising results are reported in the production of ultramarine by heating for 48 hours at 820° of a mixture of sulphur, kaolin and the melt obtained by recovery of spent liquor from pulping straw with a solution of sodium sulphite and sodium hydroxide.—C. J. W.

Dry Residue, Specific Gravity and Density of Sulphite Pulp Waste Liquors. L. I. Resnik and A. Sclacht. Ovladenie Tehk.: Kozhevennoe Proizvodstvo 1932, No. 11/12:53-54; C. A. 28:6305.—Tables analogous to those of Dieckmann are worked out for waste liquors from 3.5° to 8° Bé. Dieckmann's tables hold only for liquors above 7° Bé.—C. J. W.

Concerning the Question of Waste Liquor and its Utilization. W. Schmid, Zellstoff u. Papier 13, No. 8; 384-86 (Aug., 1933).—After a short discussion of the waste liquor situation in various countries and localities, the author describes some of the latter patents on waste utilization and their application. The greatest drawback for the successful utilization is to improve the economics of the evaporation of the liquor. So today, aside from the manufacture of ethyl alcohol which is really not a solution for the problem, the economic utilization of the waste liquor is unsolved.—J. F. O.

Miscellaneous Pulping Processes

Cellulose From Material Such As Wood. Neil C. Ward assignor to Anderson-Tully Co. U. S. pat. 1,958,376 (May 8, 1934).—A cellulosic product suitable for producing sugars or make fiber board is obtained by reducing wood to small pieces and subjecting the reduced material to moisture, pressure and heat to produce "cellulose in solution."—A. P.-C.

New Continuous Pulp Cooking System. Anon. Pacific Pulp Paper Ind. 8, No. 3; 6-8 (March, 1934).—A description of Carl E. Braun and A. H. Lundberg's U. S. pat. 1,938,802 (Dec. 12, 1933).—A. P.-C.

Digestion of Vegetable Materials for the Production of Cellulose. Herman B. Kipper. U. S. pat. 1,975,161, (Oct. 2, 1934).—Vegetable material is digested with fuming nitric acid and carbon tetrachloride in presence of oxygen at a temperature above the boiling point of carbon tetrachloride, with or without simultaneous mechanical disintegration. The resinous materials rendered soluble by the above treatment are extracted by means of a hot solution of caustic soda.—A. P.-C.

Production of Pulverized Cellulose. Milton O. Schur and Benjamin G. Hoos assignors to Brown Co. U. S. pat. 1,964,772 (July 3, 1934).—High alpha-cellulose wood pulp is boiled with a strong acid, *e.g.*, a 5% sulphuric acid solution, either at atmospheric or higher pressure, to embrittle the fiber. The fiber is washed and pulverized in a

ball mill or other suitable grinder. The material is suitable as a filler for paper.—A. P.-C.

Study of the Process of Wood Steaming. M. Robinov and V. Kondrat'ev. Vsesoyuznuii Nauch.-Issledovatel. Inst. Bumazhnoi Tzellyuloznoi Prom. Materialui (Trans. All-Union Sci. Research Inst. Paper Cellulose Ind.) 1932, No. 4:139-149; C. A. 28:5979.—In the production of brown wood pulp the optimum conditions of steaming are 9 hours at 4 atmospheres or 7 hours at 5 atmospheres for spruce and 7 hours at 4 atmospheres for aspen.—C.J.W.

New Developments in the Cooking of Pulp. E. Haggblund. Zellstoff u. Papier 13, No. 10: 473-76 (October, 1933).—A short discussion of the various systems for cooking pulp, sulphite and sulphate and a comparison of the qualities produced.—J. F. O.

Beating

The Relation of Fibrillation to Increase in Strength on Beating. S. R. H. Edge. World's Paper Trade Rev. 102: 606, 608 (Aug. 24, 1934).—Dry unbleached sulphite pulp was disintegrated in toluene, beaten in a Lampen mill in toluene, filtered, allowed to dry in the air, soaked overnight in water, opened up slightly in the disintegrator and made into test sheets. As expected, the strength of the sheets was very much lower than those prepared from pulp disintegrated and beaten in water in the usual way, but microscopical examination showed that the fibers of the toluene-beaten sheets were more highly fibrillated than those of the water-beaten sheets.—A. P.-C.

A New Type of Laboratory Beater for Beating Investigations. Leslie G. Cottrall and J. L. Gartshore. World's Paper Trade Rev. 102: 320-332, 412-418, 458-464 (Aug. 3, 10, 1934).—The only type of experimental beater giving results comparable with those of mill beaters is the Voith beater. The authors describe in detail the construction, operation and performance of the Aylesford laboratory beater, which they evolved independently along somewhat different lines, and submit data showing that it produces results similar to mill beaters and can therefore be used for studying beating problems quickly, accurately and economically.—A. P.-C.

Consistency Regulation. Frederick Wierk. Paper Trade J. 99, No. 12: 89-90 (Sept. 20, 1934).—A review of the principles relating to paper stock regulation.—A. P.-C.

Scientific Control as an Aid to the Art. F. W. Adams and G. S. Witham, Jr. Paper Mill 57, No. 25: 12-18 (June 23, 1934).—A discussion of the scientific control of the preparation of stock in the beater room and of its handling on the paper machine.—A. P.-C.

Deterioration in the Value of Wood Pulp Fibers During the Reworking of Waste Papers. A. J. Brax and E. v. Pflaer. Finnish Paper Timber J. 1933: 562-569; Chimie & Industrie 31: 1413 (June, 1934).—Paper produced from waste paper containing wood pulp has a lower strength than and inferior tinctorial properties to the corresponding original paper; but this drawback may be overcome by including a certain proportion of new pulp in the furnish. Regeneration of papers free from wood pulp gives better results as the fibers are usually more resistant to deterioration. While regeneration is technically possible, each case should be studied on its merits to see if it is economically advantageous.—A. P.-C.

Miami-Bond Pulper and Refiner. John A. Hamm. Paper Mill 57, No. 22: 10-14 (June 2, 1934).—A description of the machine, with examples of its performance in various mills.—A. P.-C.

The Fibrillation Theory of Beating. James Strachan. Paper Maker & Brit. Paper Trade J. 87, No. 4: TS81-82 (April 2, 1934.—Polemical with Campbell (Paper Trade J. 98, No. 3: 33-34 (Jan. 18, 1934).—A. P.-C.

Pulp Beating and Washing Engine. Melvin A. Mills assignor to Elizabeth M. O'Neill. U. S. pat. 1,969,420 (Aug. 7, 1934).—In a multiple-roll beater, the several rolls are preferably all located on the same side of the midfeather and with their axes at progressively higher levels, the roll first reached by the stock being the lowest and preferably being of larger diameter than the others. Below the rolls is a dam or stop structure in which are placed the bed plates, and over the rolls is a hood structure, the dam and hood being shaped to facilitate circulation of the stock and clearing of the roll. This is further facilitated by driving successive rolls at progressively increasing speeds.—A. P.-C.

Method of Disintegrating Cellulosic Material. George H. Carnahan assignor to Intercontinental Rubber Co. U. S. pat. 1,959,902 (May 22, 1934).—In a rod mill or ball mill, the cylinder or other container for the rods or balls are made in the form of a cage through which the stock can readily pass, and is submerged in a tank or other receptacle containing the stock to be milled.—A. P.-C.

A Laboratory De-Fiberer for Pulp and Paper. E. Koppe. Wochbl. Papier-fabr. 65, No. 29: 518-19 (July 21, 1934).—Description of a laboratory apparatus for defibering pulp and paper. The apparatus consists of a small cylinder in which an impellor revolves.—J. F. O.

Bleaching

Pulp Bleaching with Radiation. H. E. Wahlberg. Svensk Pappers-Tidn. 37, No. 15:481, 487-488 (Aug. 15, 1934).—A description of bleaching experiments with simultaneous radiation by uviol or quartz lamps, which indicate that such a radiation results in a saving of bleach liquor and steam which might possibly compensate for the radiation cost. The rate of reaction is also improved. Since radiation, however, has only a superficial effect, technical difficulties will be encountered in technical operation. C. J. W.

A Study of the Coloring Matter in Pine Kraft Pulps. Walter F. Holzer. Paper Trade J. 99, No. 12; 91-103 (Sept. 20, 1934).—The coloring matter in jack pine kraft pulps is due primarily to a sulphur dye which has a phlobotannin as its organic constituent. The presence of sulphur darkens the color of kraft over that of a comparable soda pulp and makes the kraft harder to bleach in proportion to its organic sulphur content.—A. P.-C.

Pulp Bleaching Process. George H. Tomlinson. U. S. pat. 1,970,065 (Aug. 14, 1934).—The process comprises subjecting the pulp to the action of chlorine in dilute aqueous solution, continuing the treatment with hypochlorous acid in a dilute solution substantially free from other acids, and bleaching the resultant product in an alkaline medium, the amount of chlorine originally added being at least sufficient to react with the lignin of the pulp and supply the hypochlorous acid of the second step and the alkaline bleach of the third step. It is carried out by adding to the pulp the necessary amount of chlorine (either as gas or in aqueous solution) with violent agitation; after 1 to 5 min. a slight excess of calcium carbonate is added to neutralize the hydrochloric acid but not the hypochlorous acid; after about 4 min. excess lime (or other caustic alkali) is added and the pulp is thus bleached in an alkaline hypochlorite solution for about 10 to 30 min.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 29, 1934

CIGARETTE PAPER

Champagne Paper Corp., Manhattan, Havre, 642 cs.; American Tobacco Co., Ile de France, Havre, 200 cs.; H. H. Strauss, Sarcoxie, Bordeaux, 209 cs.; Champagne Paper Corp., Sarcoxie, St. Nazaire 507 cs.

WALL PAPER

American Express Co., Kirishima Maru, Kobe, 1 cs.; R. F. Downing & Co., Aurania, Southampton, 6 bls.

WALL BOARD

Treetex Corp., Rydboholm, Sweden, 5640 bdls.

NEWSPRINT

Perkins Goodwin & Co., Manhattan, Hamburg, 41 rolls; ——, Deutschland, Hamburg, 274 rolls; Perkins Goodwin & Co., Deutschland, Hamburg, 255 rolls; Jay Madden Corp., Pr. Harding, Hamburg, 135 rolls; Chase National Bank, Rydboholm, Sweden, 222 rolls.

PRINTING PAPER

E. Dietzgen & Co., Deutschland, Hamburg, 1cs.; Titan Shipping Co., Deutschland, Hamburg, 3 cs.; J. H. & G. B. Siebold, Deutschland, Hamburg, 8 cs.; Keuffel & Esser Co., Pr. Harding, Hamburg, 32 rolls; Steiner Paper Corp., Rotterdam, Rotterdam, 8 cs.; S. H. Pomerance, Aurania, Southampton, 3 cs.

KRAFT PAPER

Walker Goulard Plehn Co., Pr. Harding, Hamburg, 2488 rolls.

DRAWING PAPER

Keuffel & Esser Co., Pr. Harding, Hamburg, 9 cs.; Devoe & Raynolds Co., Aurania, Southampton, 5 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Aurania, Southampton, 11 cs.

COLORED PAPER

International F'd'g Co., Deutschland, Hamburg, 4 cs.; D. C. Andrews & Co., Europa, Bremen, 1 cs.

METAL COATED PAPER

K. Pauli Co., Deutschland, Hamburg, 31 cs.

SURFACE COATED PAPER

Globe Shipping Co., Deutschland, Hamburg, 10 crates; L. A. Consmiller, Europa, Bremen, 17 cs.

BASIC PAPER

Irving Trust Co., Deutschland, Hamburg, 8 cs., 46 crates.

PHOTO PAPER

American Express Co., Deutschland, Hamburg, 68 cs.; Medo Photo-Supply Co., Aquitania, Southampton, 2 cs.

TRANSFER PAPER

D. C. Andrews & Co., Deutschland, Hamburg, 4 cs.; Fuchs & Lang Manfg Co., Manhattan, Hamburg, 7 cs.

DECALCOMANIAS

L. A. Consmiller, Europa, Bremen, 9 cs.; Sellers Transportation Co., Europa, Bremen, 30 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Port Nicholson, Liverpool, 3 cs. (duplex) B. F. Drakeneld & Co., Port Nicholson, Liverpool, 1 cs. (simplex).

TISSUE PAPER

Jay Madden Corp., Deutschland, Hamburg, 5 cs., 30 bbls.; Atlantic Fdg. Co., Deutschland, Hamburg, 8 cs.; B. F. Drakenfeld & Co., Port Nicholson, Liverpool, 2 cs.; W. J Byrnes, Aquitania, Southampton, 1 cs.

PARCHMENT PAPER

Vulcan Yeast Co., Deutschland, Hamburg, 1 cs.

GUMMED PAPER

G. Gannert, Deutschland, Hamburg, 5 cs.

MISCELLANEOUS

H. Reeve Angel & Co., Inc., Kirishima Maru, Yokohama, 5 cs.; Standard Products Corp., Ile de France, Havre, 25 cs.; Japan Paper Co., Exochorda, Genoa, 22 cs.; Keller Dorian Paper Co., Exochorda, Marseilles, 3 cs.

RAGS, BAGGINGS, ETC.

S. Birkenstein & Son, Ingria, Barcelona, 101 bls. bagging; ——, Ingria, Barcelona, 12 bls. bagging; Royal Manf Co., Ary Lensen, Antwerp, 127 bls. cotton waste; Darmstadt Scott & Courtney, Ary Lensen, Rotterdam, 97 bls. jutewaste; ——, Examelia, Barcelona, 67 bls. rags; Banco Coml Italiane Trust Co., Navemar, Genoa, 53 bls. rags; Van Oppen & Co., Navemar, Barcelona, 214 bls. bagging; Chase Nationl Bank, Navemar, Barcelona, 68 bls. bagging; Leigh Textile Co., Navemar, Barcelona, 45 bls. cotton waste; H. G. Lichtenstein, Sarcoxie, Bordeaux, 115 bls. rags; ——, Exochorda, Alexandria, 82 bls. rags; Bank of N. Y. Trust Co., Southern Prince, B. Ayres, 114 bls. rags; ——, City of Worcester, Port Said, 58 bls. rags.

OLD ROPE

Banco Coml. Italiane Trust Co., Ary Lensen, London, 101 coils; ——, Aurania, Southampton, 120 coils.

Wood Pulp

Castle & Overton, Inc., Deutschland, Hamburg, 950 bls. wood pulp, 182 tons; Bank of N. Y. Trust Co., Deutschland, Hamburg, 430 bls. wood pulp, 86 tons; Stora Kopparberg Corp., City of Fairbury, Skutskar, 1450 bls. wood pulp; Pagel Horton & Co. Inc., City of Fairbury, Gefle, 1125 bls. sulphite, 228 tons; E. J. Keller Co., Inc., Pr. Harding, ——, 622 bls. wood pulp, 98 tons; Pagel Horton & Co., Inc., Rydboholm, Sweden, 3056 bls. sulphite; Castle & Overton, Inc., Rydboholm, Sweden, 1250 bls. chemical pulp; J. Andersen & Co., Rydboholm, Sweden, 2500 bls. chemical pulp; Price & Pierce, Ltd., Rydboholm, Sweden, 2610 bls. chemical pulp; Bulkley Dunton & Co., Black Gull, ——, 270 bls. wood pulp.

ALBANY IMPORTS

Week Ending December 29, 1934

Halifax Power & Pulp Co., Helle, Sheet Harbor, 2426 tons wood pulp; Bulkley Dunton & Co., Simon von Utrecht, ——, 6500 bls. wood pulp; Bulkley Dunton & Co., Dalhem, ——, 6000 bls. wood pulp.

PORTLAND IMPORTS

Week Ending December 29, 1934

Stora Kopparberg Corp., City of Fairbury, Skutskar, 265 bls. wood pulp; Pagel Horton & Co., Inc., City of Fairbury, Gefle, 3750 bls. sulphite, 762 tons; Tradesmans Natl Bank Trust Co., City of Fairbury, Norrsundet, 1000 bls. sulphate, 215 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 3156 bls. wood pulp, 526 tons; Bulkley Dunton & Co., City of Fairbury, ——, 500 bls. sulphite, 101 tons.

BOSTON IMPORTS

Week Ending December 29, 1934

Stora Kopparberg Corp., City of Fairbury, Skutskar, 2730 bls. wood pulp; Pagel Horton & Co., Inc., City of Fairbury, Gefle, 1250 bls. sulphate, 254 tons, Pagel Horton & Co., Inc., City of Fairbury, Gefle, 1750 bls. sulphite, 203 tons; Pagel Horton & Co., Inc., City of Fairbury, Wallvik, 180 bls. wood pulp, 30 tons; Price & Pierce, Ltd., City of Fairbury, Wallvik, 2700 bls. wood pulp, 450 tons; Tradesmans Natl Bank Trust Co., City of Fairbury, Norrsundet, 2750 bls. sulphate, 590 tons; Perkins Goodwin & Co., City of Fairbury, Norrsundet, 250 bls. sulphate 57 tons; ——, City of Fairbury, Iggesund, 1325 bls. sulphate, 265 tons; ——, City of Fairbury, Iggesund, 256 bls. chemical pulp, 51 tons; ——, City of Fairbury, Iggesund, 750 bls. sulphite, 150 tons; Bulkley Dunton & Co., City of Fairbury, ——, 1956 bls. wood pulp; Bulkley Dunton & Co., Dalhem, ——, 3100 bls. wood pulp; Bulkley Dunton & Co., Tugela, ——, 1825 bls. wood pulp.

PHILADELPHIA IMPORTS

Week Ending December 29, 1934

G. A. Henshaw & Sons, Ary Lensen, London, 115 coils old rope; Van Oppen & Co., Ary Lensen, Antwerp; 33 bls. bagging, Van Oppen & Co., Ary Lensen, Antwerp, 90 bls. rags; H. G. Lichtenstein, Examelia, Algiers, 111 bls. rags; Stora Kopparberg Corp., City of Fairbury, Skutskar, 655 bls. wood pulp; ——, City of Fairbury, Iggesund, 1050 bls. chemical pulp, 210 tons; H. G. Lichtenstein, Sarcoxie, Bordeaux, 186 bls. rags; ——, City of Worcester, Port Said, 24 bls. thread waste; Bulkley Dunton & Co., Augsburg, ——, 500 bls. wood pulp; Bulkley Dunton & Co., Tugela, ——, 500 bls. wood pulp.

CAMDEN IMPORTS

Week Ending December 29, 1934

Bulkley Dunton & Co., Tugela, ——, 13400 bls. wood pulp.

BALTIMORE IMPORTS

Week Ending December 29, 1934

Congoleum Nairn Co., Sarcoxie, St. Nazaire, 598 bls. rags; Bulkley Dunton & Co., Simon von Utrecht, ——, 3125 bls. wood pulp; Bulkley Dunton & Co., Breedyk, ——, 1080 bls. wood pulp; Bulkley Dunton & Co., Griesheim, ——, 3825 bls. wood pulp.

NEWPORT NEWS IMPORTS

Week Ending December 29, 1934

Bulkley Dunton & Co., Consul Corfitzon, ——, 4460 bls. wood pulp; Bulkley Dunton & Co., Griesheim, ——, 1075 bls. wood pulp.

HOUSTON IMPORTS

Week Ending December 29, 1934

Banco Coml Italiane Trust Co., Maria, Naples, 94 bls. bagging.

National Paper Products Co. Dines

[FROM OUR REGULAR CORRESPONDENT]

Carthage, N. Y., December 31, 1934—The annual banquet of the National Paper Products Company, a subsidiary of the Crown-Zellerbach Corporation, was held this week at which a number of employees received service medals in appreciation of lengthy service. A. B. Lowenstein, vice president, was the principal speaker and related the history of the company from its founding in 1850 to the present time. He said that the local plant was the first venture of the concern into paper manufacturing, starting in 1916 with a machine for producing towels under the supervision of the late Henry L. Sampson. The company now employs about 225 persons in its two mills here. It was brought out that the local mill holds the best record of the several branches relative to lengthy service amongst employees.

During his visit here Mr. Lowenstein presided at the annual convention of the sales force of the company. Among those attending the conference were Wayne A. Brown, general sales manager of the Crown-Zellerbach Corporation; H. O. Nichols, sales manager; S. G. Gue, representative of the statistical department; John A. Frost, H. L. Samson, F. J. Symonds, H. Harvey, G. Dryman, H. A. Munson, F. E. Sweeney, E. J. Kelly, W. L. Kelly, J. N. Souders, R. F. Matthews, and H. C. Bliel. W. R. McWaters, a representative of the Sanitary Products Company, another subsidiary, also attended the meeting. A tour of inspection of the local mills was included in the program.

Oliver Filter Changes

Oliver United Filters Inc. announces the resignation of James A. Lane, western division sales manager, who has accepted an executive position with the Holly Sugar Corporation.

Oliver United Filters Inc. announces the appointment of P. J. McGuire as western division sales manager with headquarters in San Francisco. Mr. McGuire was formerly with the company in its Los Angeles office.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 2, 1935.

Conditions in the local paper market are more favorable than a year ago. Demand for the various standard grades of paper has been fairly persistent during the holiday season. Sales forces of the leading paper organizations are looking forward to the next twelve months with confidence. Prices are holding up well, in most instances.

The news print paper market is in a stronger position. Demand from the newspaper publishers is brisk and manufacturing operations have been expanded to meet prevailing requirements. The recently announced higher quotations are now in effect and contracts are being booked at $42.50 per ton, delivered New York.

Steadiness prevails in the fine paper market. Demand for the various grades was unusually good during the holiday season. Prices are holding to schedule. Tissues have also shared in the general improvement. The coarse paper market is exhibiting a strong undertone. Many of the paper board mills are closed for inventories and improvements.

Mechanical Pulp

The ground wood pulp market is slightly easier and quotations have declined. Production in North America and abroad is being maintained in sufficient volume to take care of current needs. No. 1 imported moist and dry mechanical pulp is now quoted at from $21 to $22 per ton, on dock, Atlantic ports and No. 1 domestic and Canadian at from $18 to $24 per ton, f.o.b. mill.

Chemical Pulp

The position of the chemical pulp market is practically unchanged. Demand for both domestic and imported grades is mainly along seasonal lines. Prices are holding to schedule. Domestic and foreign bleached sulphite is still quoted at from $2.75 to $2.85, on dock, Atlantic, Gulf and West Coast Ports, according to divisions.

Old Rope and Bagging

Business in the old rope market is marking time. Demand for domestic and foreign old manila rope is only moderately active. Small mixed rope is moving in fair volume. Old rope prices are unchanged. The bagging market is slightly firmer. Offerings of gunny bagging are limited. Scrap and gunny bagging are arousing more interest.

Rags

Some improvement is noticed in the domestic rag market. Demand for new cotton rags is satisfactory for the time of year. No. 1 white shirt cuttings are in good export request. Roofing grades are moving freely. Quotations on new cotton rags are firmer. The outlook for old rags is also considered more promising.

Waste Paper

The higher grades of paper stock are fairly buoyant, especially No. 1 hard white envelope cuttings. Old kraft machine compressed bales are steady. Since the cancellation of the order establishing minimum prices on the lower grades of waste paper by the NRA, quotations have been nominal. More livelier trading is anticipated after the inventory period.

Twine

Demand for the various varieties of twine was well sustained until the end of the year. Supplies have been moving into consumption in heavy volume. The outlook for the coming year is considered bright, in most quarters. Prices are generally holding to formerly quoted levels, without difficulty.

New England Paper Merchants Protest

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 31, 1934—A protest, in the form of a resolution, against direct selling of mills to consumers of articles of paper and paper products, signed by over fifty New England paper merchants handling wrapping paper and paper products, will be sent January 2 to manufacturers and converters of wrapping paper and paper products by Frank B. Cummings, secretary of the New England Paper Merchants Association. The communication reads as follows:

"At a meeting of the Wrapping Paper Division of the New England Paper Merchants Association December 11, 1934, it was resolved: that whereas the wrapping paper merchants of New England have been, and now are, definitely harassed by direct selling of mills to consumers of articles of paper and paper products usually carried by wrapping paper merchants, which class of trade should be considered the legitimate business of the paper merchant, we, the wrapping paper merchants of New England, do hereby protest against such practices by any mill or group of mills. It is our belief that mills which do *not* pursue a direct selling method are entitled to the merchants' support. To reflect adequately the views of the Trade, will you please state whether you agree with the principles in the above resolution?"

Now Lotbiniere Pulp & Paper Co., Ltd.

The Lotbiniere-McCrea-Baker, Inc., owned by the Estate of the late F. N. McCrea, Sherbrooke, Que., operated the ground wood plant at Danville, Que., until 1929 at which time the company was reorganized under the name of Lotbiniere Pulp Ltd. and carried on its business under that name until May 31, 1932. On June 5, 1932, Lotbiniere Pulp Ltd. rented the plant to Poulin, Roberge & Marcotte, who operated under the name of Lotbiniere Pulp and Manufacturing Company until May 16, 1933. On May 16, 1933, Lotbiniere Pulp Ltd. sold all its property to James C. Wemyss and has been operating under his name since that date. This company has now been incorporated and beginning January 1, 1935, will operate under the new name of Lotbiniere Pulp and Paper Company Ltd.

The directors of this company are as follows: J. S. Weymss, president and treasurer; James C. Wemyss, vice president, and J. Wilfrid Marcotte, Danville, Que., secretary. The principal place of business is Danville, Que.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 2, 1935.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. Contract shipments are moving in normal volume for the season. Prices are steady and unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is marking time. Domestic standard ground is quoted at 9¼ and finely ground at 10 cents per pound; while Argentine standard ground is offered at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Business in the caustic soda market is fairly active. The contract movement is well up to average. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Prices remain unchanged. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Steadiness prevails in the chlorine market. Contracts for 1933 are being booked in good volume. Prices remain unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is firm. Paper making gum rosin is still quoted at $4.50 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is fairly persistent. Prices remain unchanged. Salt cake is quoted at from $12 to $14 and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, on dock.

SODA ASH.—The soda ash market is in a strong statistical position. The contract movement is normal. Prices are firm. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Conditions in the starch market are fairly satisfactory. Shipments against contract are moving in good volume for the time of year. Special paper making starch is quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Due to the holidays, the sulphate of alumina market is rather quiet. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 ton, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads the quotation is $21 per ton.

TALC.—Trading in the talc market is quiet at present but should improve following the holidays. Domestic talc is still quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	42.50	@	—
Rolls, spot	42.50	@	—
Sheets	47.50	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	21.00	@	22.00
Dry	21.00	@	22.00
(F.o.b. Mill)			
No. 1 Domestic and Canadian	18.00	@	24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60

(F.o.b. Pulp Mill)

Kraft Domestic	1.60	@	2.25

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	Nominal		
No. 1 Mixed Paper	Nominal		

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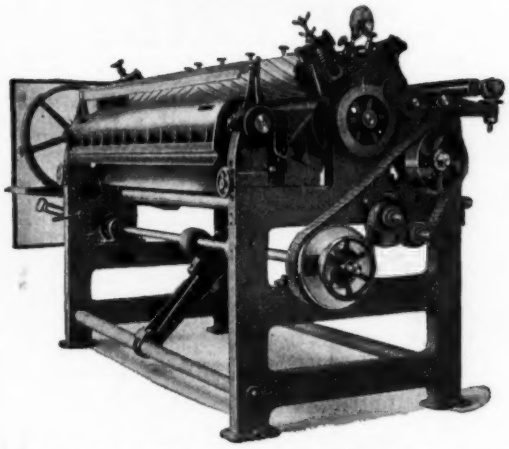

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CHEMICAL & MECHANICAL PULP

Kraft Pulp

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Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
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Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

Twines

(F. o. b. Mill)

Course Polished—
- India ..... .11¼@.13¼
- Belg. White Hemp .12¼@.15½
- India Compress.... .11¾@.12¼

Fine Polished—
- Fine India ..... .16@.20
- Special ..... .16@.18
- B. C. ..... .25½@.27½

Unpolished—
- Box ..... .10@.10½
- Paper Makers ..... .07@.11½
- Tube Rope ..... .08@.13½
- Wall Paper ..... .09@.12½
- Wrapping ..... .12@.17
- Special ..... .12@—
- Soft Fiber Rope .. .10¼@.10¾

CHICAGO

Paper

(F. o. b. Mill)

- Rag Bond ..... .12@.50
- Water Marked Sulphite Bond ..... .06¾@.11
- Sulphite Bond ..... .05½@.11
- Superfine Writing ... .18@.24
- No. 1 M. F. Book.. .06½@.07¾
- No. 2 M. F. Book.. .05¾@.06¾
- No. 1 S.&S.C. Book .06¾@.07¾
- No. 2 S &S.C. Book .05¾@.06½
- Coated Book ..... .07@.12
- Coated Label ..... .07@.08½
- No. 1 Manila ..... .04½@.05¾
- No. 1 Fibre ..... .04¾@.05¼
- No. 2 Manila..... .04¼@.04¾
- Butcher's Manila.... .03¼@.03¼
- No. 1 Kraft ..... 4.75@5.00
- Southern Kraft ..... 3.88@4.25
- No. 2 Kraft..... 3.88@4.25
- Wood Tag Boards... .04¾@.06¾
- Sulphite Screenings.. .03@.03¾
- Manila Tissue ..... .05¾@.07
- White Tissue ..... .07@.09

(Delivered Central Territory)

News, per ton—
- Rolls, contract.....41.00@—
- Sheets, open.....46.00@51.00

Boards, per ton—
- Plain Chip.....46.50@—
- Solid News.....50.00@—
- Manila Lined Chip...55.00@—
- Patent coated.....65.00@—

Container Lined—
- 85 Test, per 1000 sq. ft..... 1.70
- 100 Test, per 1000 sq. ft..... 1.85

Old Papers

(F. o. b. Chicago)

Shavings—
- No. 1 White Envelope cuttings ... 1.70@2.00
- No. 1 Hard White. 1.40@1.65
- No. 1 Soft White.. 1.25@1.50
- Ledger & Writings.. .70@.80
- Solid Books..... .60@.70
- Blanks ..... 1.00@1.05
- Krafts ..... .80@.90
- New Kraft Cuts..... 1.20@1.30
- Manila Env. Cuts ... 1.25@1.30
- Ex. No. 1 Manila... .90@1.00
- Print Manila..... .50@.55
- Overissue News..... .60@.70

Old Newspapers—
- No. 1 ..... .50@.55

Mixed Papers—
- No. 1 ..... .30@.35

Roofing Stocks—
- No. 1.....30.00@—
- No. 2.....28.00@—

PHILADELPHIA

Paper

(Delivered Philadelphia)

- Bonds ..... .05-9/10@.38
- Ledgers ..... .06 9/10@.40
- Writings—
  - Fine No. 3 ..... .05@.06
  - Superfine ..... .10@.18
  - Extra Fine ..... .15@.26
  - Fine ..... .15@.26
  - Fine, No. 2 ..... .10@.25
- Book, M. F. ..... .05¼@.06¼
- Book, S. S. & C. ... .05@.07½
- Book, Coated ..... .06½@.09
- Coated Lithograph .. .06¾@.08½
- Label ..... .07@.11
- No. 1 Jute Manila .. 6.25@—
- Manila Sul., No. 1 .. 5.25@—
- Manila No. 2 ..... 3.00@—
- No. 1 Kraft ..... 5.00@—
- Southern Kraft ..... 4.75@—
- Common Bogus..... .03@.04½
- News Print Rolls.....46.00@55.00
- Straw Board.....40.00@45.00
- News Board.....50.00@—
- Chip Board.....45.00@—
- Wood Pulp Board...70.00@85.00
- Binder Boards—
  - No. 1, per ton.....75.00@80.00
  - No. 2, per ton.....70.00@75.00
  - Carload lots.....65.00@70.00
- Tarred Felts—
  - Regular .....52.25@54.25
  - Slaters (per roll).. .84@.94
- Best Tarred, 1-ply (per roll)..... 1.95@2.10
- Best Tarred, 2-ply (per roll)..... 1.59@1.66
- Best Tarred, 3-ply... 2.00@2.25

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—
- New White, No. 1. .03½@.04
- New White, No. 2. .02½@.04
- Light Silesias..... .02½@.03
- Silesias, No. 1.... .03@.03½
- Black Silesias, soft. .02½@.03
- New Unbleached.. .05@.05½
- Washable, No. 1.. .01¾@.02
- Blue Overall ..... .03½@.04

Cottons—According to grades—
- Washable, No. 2.. .02½@.03
- New Blue..... .01½@.03
- Fancy ..... .01½@.03
- New Black Soft ... .02@.04
- New Light Seconds .01¾@.02
- New Dark Seconds 1.50@1.75
- Khaki Cuttings— .03@.04
  - No. 1 O.D..... .03@.04
  - No. 2 Mixed..... .03@.04
- Corduroy ..... .02@.03
- New Canvas..... .03½@.04½
- New Black Mixed. .02½@.03½

Domestic Rags (Old)

- White No. 1— 2.50@3.50
  - Repacked ..... 2.50@3.50
  - Miscellaneous ..... 1.75@2.25
  - M. G. ..... 3.00@3.75
- Thirds and Blues—
  - Miscellaneous ..... 1.00@1.50
  - Repacked ..... 1.50@2.00
  - Black Stockings (Export) ..... 2.00@3.50
- Roofing Stock—
  - Foreign No. 1..... .50@.75
  - Repacked ..... .70@.85

Bagging

(F. o. b. Phila.)

- Gunny, No. 1— 1.25@1.50
  - Foreign ..... 1.25@1.50
  - Domestic ..... 1.50@1.75
  - Manila Rope..... 2.00@2.25
- Sisal Rope ..... 1.25@1.50
- Mixed Rope..... 1.00@1.10
- Scrap Burlaps—
  - No. 1..... 1.25@1.50
  - No. 2..... .80@1.00
- Wool Tares, heavy.. 2.75@—
- Mixed Strings..... 1.15@1.25
- No. 1 New Light Burlap ..... 2.25@2.50
- New Burlap Cuttings 2.00@2.25

Old Papers

(F. o. b. Phila.)

Shavings—
- No. 1 Hard White. 2.25@2.30
- No. 2 Hard White. 1.90@2.00
- No. 1 Soft White.. 1.80@1.85
- No. 2 Soft White.. 1.25@1.30
- No. 1 Mixed..... —@.75
- Solid Ledger Stock.. 1.50@1.60
- Writing Paper..... 1.00@1.10
- No. 1 Books, heavy.. .55@.60
- No. 1 New Manila.. 1.35@1.40
- Print Manila ..... .50@.60
- Container Manila.... .45@.50
- Old Kraft ..... 1.15@1.20
- No. 1 Mixed Paper.. .32½@—
- Straw Board Chip... .30@—
- Binders Board Chip. .30@—
- Corrugated Board... .50@—
- Overissue News..... .60@—
- Old Newspapers..... .42½@—

BOSTON

Paper

(F. o. b. Mill)

Ledgers—
- Sulphite ..... .06@.12½
- Rag Content ..... .12@.30
- All Rag ..... .36@.52½

Bonds—
- Sulphite ..... .07¾@.11
- Rag Content ..... .12@.30
- All Rag ..... .36@.65

Writings ..... .06½@.20
- Superfines ..... .11@.31

Book, Super ..... .06@.09
Book, M. F. ..... .05½@.08½
Book, Coated ..... .08½@.18
Coated Litho ..... .09@.12
Label ..... .09½@.15
Jute Manila No. 1 . .11@.13
Manila, Sul. No. 1 . .04¾@.06½
Manila, Sul. No. 2 . .03¾@.04½
No. 1 Kraft..... .04¾@.05
No. 2 Kraft..... .03¾@.04½

(F. o. b. Boston)

Southern Kraft..... .03¾@.04½

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus .... .02@.02¼

(Delivered New England points)

- News Print, rolls....44.50@—
- Straw Board, rolls.009 —@35.00
- Straw Board in Sheets, basis 35s to 70s ..... —@40.00
- Filled News Board..40.00@45.00
- Chip Board .....37.50@40.00
- Chip Board (Creasing) .....37.50@40.00
- Single Manila Lined Chip .....47.50@52.50
- Single White, Patent Coated News Board (Bender) .....57.50@65.00
- Wood Pulp Board ..70.00@75.00
- Binder Boards (Standard Grade).....67.00@75.00

Old Papers

(F. o. b. Boston)

Shavings—
- No. 1 Hard White. 2.00@2.20
- No. 1 Soft White.. 1.75@1.90
- No. 2 Mixed..... .75@.80
- Solid Ledger Books.. 1.75@—
- Overissue Ledger Stock ..... 1.15@1.30
- Mixed Ledgers ..... .95@1.05
- No. 1 Books, heavy. .50@.60
- No. 1 Books, light.. .55@.65
- Crumpled Stitchless Book Stock..... .50@.60
- Manila Env. Cuttings 1.25@1.30
- No. 1 Old Manila... .65@.70
- White Blank News.. 1.20@1.25
- No. 1 Kraft..... .85@.95
- No. 1 Mixed Papers. .32½@—
- Print Manila ..... .45@.50
- Overissue News..... .45@.50
- Old Newspapers..... .42½@.45
- Box Board Chips.... —@.25
- Corrugated Boxes... —@.32½
- Screening Wrappers . .50@.60

Bagging

(F. o. b. Boston)

Manila Rope—
- Foreign ..... 1.75@1.90
- Domestic ..... 1.90@2.00
- Transmission Rope.. .90@1.00
- Mixed Strings..... .17½@.30
- Jute Rope ..... 1.35@1.40
- Jute Carpet Threads .65@.70
- Gunny No. 1— 1.50@1.60
  - Foreign ..... 1.50@1.60
  - Domestic ..... 1.15@1.20
- Bleachery Burlap.... 4.00@4.50
- Scrap Burlap ..... 1.05@1.10
- Scrap Sisal ..... 1.00@1.10
- Scrap Sisal for Shredding ..... 1.10@1.25
- Wool Tares, heavy . 1.25@1.30
- New Burlap Cuttings 1.45@1.50
- Australian Wool Pouches ..... 2.00@2.25
- Heavy Baling Bagging ..... 1.40@1.50
- Paper Mill Bagging.. .90@1.10
- Bagging No. 2 ..... .50@.55

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—
- New Light Prints .01¾@.02
- New White No. 1. .05½@.06
- New White No. 2. .03½@.04
- Silesias No. 1..... .04@—
- New Black Silesias .02½@.03
- New Unbleached.. .05½@.06
- Blue Cheviot .... —@4.65
- Fancy ..... .0185@.0195
- Washable ..... .0165@.0170

Cottons—According to grades—
- Blue Overalls ..... —@.03¾
- New Black, soft..... 04@.04½
- Khaki Cuttings..... .03¾@.03½
- O. D. Khaki..... .03@.03¾
- Corduroy ..... .01¾@.02
- New Canvas..... —@.05
- B.V.D. Cuttings..... —@.06¾

Domestic Rags (Old)

(F. o. b. Boston)

- Canvas ..... .04½@—
- White No. 1— 2.75@3.00
  - Repacked ..... —@3.00
  - Miscellaneous ..... 2.50@2.75
- White No. 2— 2.25@2.75
  - Repacked ..... 2.00@2.75
  - Miscellaneous ..... 2.00@2.25
- Twos and Blues..... 1.25@1.50
- Thirds and Blues— 2.25@2.75
  - Repacked ..... 2.00@2.75
  - Miscellaneous ..... 2.00@2.25
- Black Stockings .... 2.50@3.00
- Roofing Stock
  - No. 1..... .80@.85
  - No. 2..... .70@.75
  - No. 3 ..... .55@.60

Foreign Rags

(F. o. b. Boston)

- Dark Cottons ..... 1.00@1.10
- New White Shirt Cuttings ..... 5.50@6.00
- Dutch Blues..... 2.00@2.50
- New Checks & Blues 2.50@3.00
- Old Fustians ..... 1.55@1.60
- Old Linsey Garments 1.25@1.35

TORONTO

Paper

(F. o. b. Mill)

Bond—
- No. 1 Sulphite.... .10¾@—
- No. 2 Sulphite.... .08½@—
- No. 1 Colored.... .10¾@—
- No. 2 Colored .... .09@.10

Ledgers (sulphite)
- Ledgers, No. 1 .... .34½@—
- Ledgers, No. 2 .... .25½@—
- Writing ..... .09@.09½

Book—
- No. 1 M. F. (Carloads) ..... 6.20@—
- No. 3 M. F. (Carloads) ..... 5.70@—
- No. 4 M. F. (carloads) ..... 4.75@—
- No. 1 S. C. (carloads) ..... 6.65½—
- No. 3 S. C. (carloads) ..... 6.20@—
- No. 4 S. C. (carloads) ..... 5.20@—
- No. 1 Coated and Litho .....12.00@—
- No. 2 Coated and Litho .....10.50@—
- No. 3 Coated and Litho ..... 9.50@—
- Coated tinted .....14.00@—

Wrapping—
- Rag Brown..... 4.25@—
- White Wrap..... 2.22½@—
- "B" Manila..... 4.75@—
- No. 1 Manila..... 5.25@—
- Fiber ..... 5.25@—
- Kraft, M. F. .... 5.75@—
- Kraft No. 2..... 5.25@—

(F.O.B. Cars Toronto)

News, per ton—
- Rolls (contract)...39.50@—
- Sheets .....44.50@—

Pulp

(F. o. b. Mill)

- Ground Wood.....18.00@20.00
- Sulphite easy bleaching .....40.00@—
- Sulphite, news grade.38.00@—
- Sulphite, bleached....50.00@55.00
- Sulphate .....50.00@—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—
- White Env. Cut .. 2.00@2.30
- Soft White ..... 1.60@1.90
- White Blk. News.. 1.25@1.40

Book and Ledger—
- Flat Magazine and Book Stock (old) .90@1.00
- Light and Crumpled Book Stock. .80@.90
- Ledgers and Writings ..... 1.00@1.05

Manilas—
- New Manila Cut.. 1.25@1.50
- Printed Manilas .. .70@.60
- Kraft ..... 1.25@1.50

News and Scrap—
- Strictly Overissue.. .80@—
- Strictly Folded ... .60@—
- No. 1 Mixed Paper.. .50@—

Domestic Rags

(Price to mills, f. o. b. Toronto)

- No. 1 White Shirt Cuttings ..... .06@.06¼
- Fancy Shirt Cuttings .02¼@.02½

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PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-THIRD YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

Published Every Thursday by the LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President. J. BANNINGA, Sec.-Treas.

Published at 34 No. Crystal St., East Stroudsburg, Pa. Executive and Editorial Offices: 15 West 47th Street, New York. Chicago Office: 123 West Madison St.

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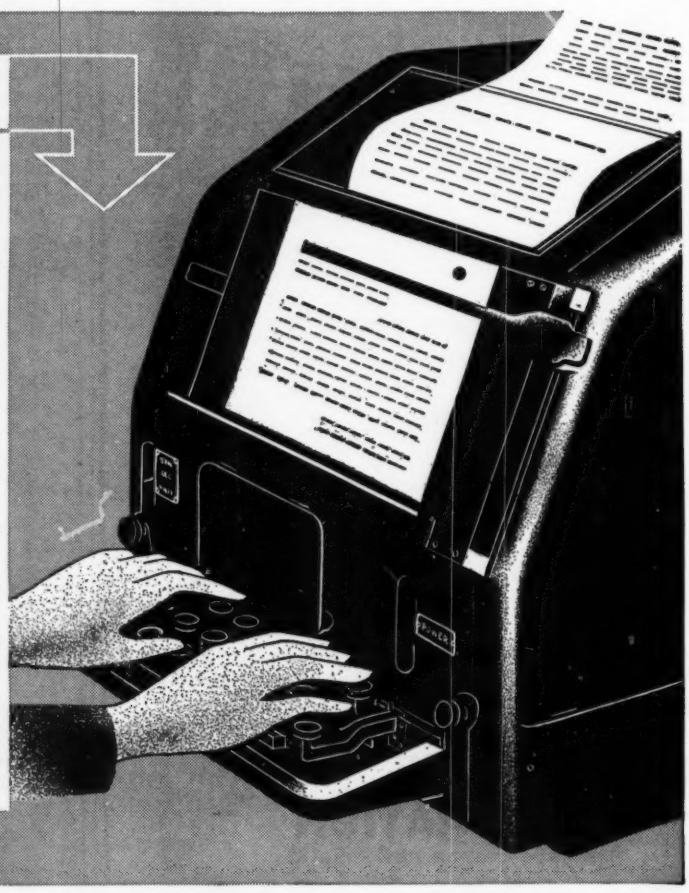

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